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Southern Agriculturist,

AND

REGISTER OF RURAL AFFAIRS;

ADAPTED TO THE

SOUTHERN SECTION OF THE UNITED STATES.

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By JOHN D. LEGARE, EDITOR.

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THE
SOUTHERN AGRICULTURIST.

JANUARY, 1831.

PART I.

ORIGINAL CORRESPONDENCE.

**ART. I.—*On Manuring, Enclosing and Clearing Lands;*
by A PLANTER.**

It should enter into the plan of every planter to increase the productiveness of his plantation, and to do so, except under very special circumstances, must require the aid of each of the above means. I shall speak of them in the order in which they are named, and give what I consider the best method in each. Manures are to be made in the stock and stable yards and stables. Moveable pens of such sizes as to require removal once a fortnight, with proper littering, are perhaps the surest mean of getting the most land manured, as nothing is lost, but they require so much attention and interfere so much with other plantation operations, at a busy time, that every thing considered, they are perhaps not to be preferred to stationary pens.

Select a dry and level woodland spot, with nothing but the small growth grubbed out—its shade is agreeable to the stock, it admits the rain, is a great protection from the evaporation of the sun, and its leaves and straw are some addition to the manure pile—it should be level, or the slope very gradual, so as not to run off quickly the soaking of the yard. Your next step should be to pen all your stock every night, both winter and summer. Litter your yard with leaves and pine straw, and you may add corn and cotton stalks, weeds, &c. I have always left the corn and cotton

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stalks to be listed where they grew. I have them without trouble where they are of some use, and the same trouble brings me what I should not have without, and which answers as good a purpose. I regard all litter chiefly as means of absorbing the moisture and materials of the stock yard. On swamp grounds and in a wet time, you may pile or bank your litter once a month, especially if you feed on pumpkins; on dry upland pens in a dry time, once in two months, and your stable will require cleaning out in about the same time. Make large piles and do not bank against trees, as it kills them; the manure should not be rich, for if you wait till it is made rich, you lose too much in quantity; the droppings should be cut as the "sugar to sweeten the mass;" our hot sun is so active an enemy, you must not give him too much time to act on the manure in its broad surface, while making. I think you may calculate on ten loads of manure for every head of your stock, and perhaps much more. The method of making manure above recommended, will require but a very small portion, if any, of the time that ought to be applied either to the making or gathering the crop, but remember it is to be regarded as a part of the necessary business of the plantation, and not as one of those concerns that is to be attended to only when there is no other business on hand.

Your next resource is to make the piles or banks in the woods convenient to the fields, by scraping the leaves, straw and surface of the earth, in rich places, into banks of the size of the usual slip or potatoe banks, and each labourer should make two or three in the day, and on wet days, as the moisture decomposes the leaves and straw and makes it all manure. This work generally occupies the wet days between hoeing and harvest, and there is no limit to the quantity that may be made, except the ability to haul it. It is not a very valuable manure, and will not repay you where the distance to haul it will exceed from three-fourths to a mile. Another mode is to collect in baskets pine-straw and leaves into rail-pens five or six feet high, and cover it over with earth in a wet state to rot the sooner; this also is very expeditious, but almost too poor to be worth hauling. It is valuable to correct the quality of stiff lands.

Another mode, and though last mentioned, not least valued, is, when your cotton and corn crops are laid up in July or August, to take baskets and cover the alleys of cotton and

the hills of corn with leaves or pine straw. it answers for a list to the succeeding crop, and I think it improves the growing crop, by retaining the moisture in the soil, and when you cover well, it prevents the grass from growing. Where your materials are convenient, three labourers will litter an acre a day well; it is the most expeditious as it is applied to the crop, and with immediate and ultimate benefit and quicker than it could be placed in the stock yard.

Your manure being made, the next inquiry should be how it ought to be applied for most effect; if there was any method by which it could be applied to the ears of the corn and to bolls of the cotton, that is, to the production of the fruit and not to the bulk or increase of the stalk, it would be desirable, and though this cannot be done entirely in any way, yet it is certainly more gained by late than by early manuring. Late manuring leaves the plants to gain what size they can from the natural resources of the earth till they reach the fruit bearing age, and every planter will have observed that the productiveness of his fields has depended less on the size of the stalks than the favourable seasons, when they were bearing fruit; without being acquainted with rice culture, but judging by parity of reasoning, I should suppose the crop would depend less on the size of the stalks than the order of the ground and the moisture when in the oily or fruiting stage. Every stalk of corn, high or low, bears about the same number of leaves and the same envelopes of shuck, and it is principally in the former that you lose by late manuring. I would for the reason above given never broad cast my manure, but apply it directly to the plant, and I would manure late all that I had time to do, but as late manuring comes, to one who has a large crop in, at a season when the time is not to be spared, I would only reserve my cotton seed for that purpose, (as it is put on with great expedition,) and apply it when the corn was knee or waist high, it will then be acting with its greatest effect when the corn is in earing.

The next inquiry should be in what quantities ought your manures to be applied, so as to increase the crop most, to which I can only reply an opinion bottomed on but little experience, and say, cotton seed at the rate of a wagon load of fifty or sixty bushels, stock-yard litter, at the rate of five, and bank manure, ten loads to the acre, as I consider them in these proportions as of about equal effect. I think a wa-

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gon load of seed will make such land as would yield ten bushels of corn unassisted, produce fifteen, and two loads would not increase it to twenty bushels to the acre; and that the increase of production would diminish in relative proportion to the number of loads put on the acre. I think it not of much consequence whether you apply your manure under, over, or on each side of the corn, though I prefer on the sides, but it is material that it should be covered. Where you put on cotton seed after the corn is moulded, it must be covered by the plough, and a furrow on each side with a small plough makes place for it, so that the return plough covers it well. Litter for cotton is best scattered after the beds are thrown up by the plough; it may be put on the list before the ploughing. I think it too loose when scattered in the alleys and then listed in. Cotton seed is so valuable as a manure, that a correct knowledge of its properties and effects would be of great use; it will remain in the field six months exposed, and be sound if left in the conical shape in which it is deposited from the wagon, therefore haul it out when it suits you, as it is safer in the field than at the gin-house; much of its value is lost by its vegetating, and its virtues are still more destroyed by being allowed to heat and swell at the gin-house. Repeated trials have not yet furnished any expeditious and certain mode of having the seed killed just before it is to be applied, and it is a desideratum much wanted.

On Enclosing.

Having never had much land to spare from cultivation, my experiments have been few and limited. Where full crops are planted, it would not be easy to use any crop for manuring with, that would require cultivation when the market crop was making; and this would exclude a large class of plants that would seem suitable for the purpose, and leaves you only the small grains and peas which may be sowed in July, and ploughed under after the business of the crop was principally over. The natural growth of the first and second year of ungrazed lands makes a list little inferior to small grain. I should judge of the value of the manuring crop by the earliness and the completeness with which it covered the earth and saved it from the evaporation of the sun. The cover should be ploughed under not in its green state, but when the juices of the various plants were

elaborated into a woody substance, and before the drying had gone too far. Green weeds and green grass are only embodied water, and when cut are evaporated and gone before the next evening or within ten days, when the same weeds and the same grass cut when mature, will remain through the winter with nearly all their size and substance about them. Take as little as possible from the manuring crop; I infer this from knowing land to have been much injured by taking a large crop of peas and pea-vines from it. I shall attempt to add nothing on a subject so imperfectly known to me, and proceed to another that has occupied much of my time and reflection.

On Clearing.

Your object should be to do it in such a manner as to preserve as much as possible all that grew on the land for its manure, you should therefore burn as little of the litter and rubbish on the soil as you can to make a crop on it. You should, in the winter,* girdle, belt or ring all the trees above four or five inches in diameter, by cutting through the bark all round the trees, and prevent the passage of the sap, and the trees will die the following spring and summer twelvemonth; this operation may be done by taking the chip out, or by single chops of the axe, taking care that each chop cuts into a part of the previous chop, and it is much more expeditious. In this way you may girdle from one to four acres a day to each labourer. The ash, the maple, the pine, the oak, and the cotton, are easy to kill; the beach, the gum, and the sycamore, are killed with great difficulty; the hickory should be cut down, as it very soon falls after dying, and is harder to cut when dry. The following winter I would cut down low, every thing under the size of four inches—the bushes even with the ground. Your bull-tongue ploughs, three inches wide, and from ten to fifteen long, should follow the cutting and rolling, and precede the burning, and each cut may be from eight to twelve inches apart to break the roots and prevent the fires from spreading over the surface; the cropping of it should be after the burning, and the whole ground broken, as may

* Poor uplands should not be girdled for clearing, nor cleared in the summer season while the sap is up, unless they have been previously girdled, as it impoverishes the soil very much. I have no very satisfactory way of accounting for this, but I feel fully assured the fact is so.

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now be done well—if the previous ploughing has only been done tolerably well. If your clearing is done early in the winter, it may give you a good crop of cotton, by bedding in all the rubbish and putting earth on the beds at every working it receives. New lands lie too loose and open, you should cover the seed deep, trample the beds, and put fresh earth on every time you hoe or plough, to try and pack it down and make it lay close. If you plant corn, list all the rubbish into lists or beds, at six feet, and plant in the alleys, and never touch the beds with either hoe or plough, till you “lay by” the corn and then draw it to the corn; it is the best mode I have ever tried on new lands. If you are not ready to clear the winter after girdling, there will be no injury in two, or perhaps three years, but after that time the principal benefits from girdling are lost. The usual mode of clearing is to grub, cut, roll and burn, leaving a few trees on the acre, and is tedious. The mode recommended takes about one half the time, and is to be preferred for several reasons, the grubbing is saved, the cutting is less, as the limbs break to pieces by the fall, the burning is less with the dry wood, and the land is more littered, and consequently improved, and it has the effect of raising the surface of the earth, and making it more productive; the only objections to leaving so many dead trees standing are their danger to the slaves, and injury by falling on the crop. I regard them both as of little weight, the one being of extremely rare occurrence, and from the other, experience has shown me that the apparent injury was much greater than the real. I make no remarks on the method of clearing, very common in the lower part of the State, of cutting down all the growth, and leaving the large trunks only on the ground, it does not suit so well where we look to the plough for three-fifths of the labour of the crop. One other method of clearing that I was much pleased with, was to cut in August, when in full foliage, every thing, and fell it all in one direction, as near as the leaning of the trees would permit, and in a forest of thick growth there are but few that may not be so felled; nothing is cut up or rolled, the fire is put to it in a dry time, and in a windy day of the winter or spring following, and the labour of weeks is saved in a few hours; the fire is so strong it will consume all the branches and smaller parts of the bodies, and many of the bodies, besides cleaning the land and destroying the roots

of the grubs and bushes. The labour to the cutter is afterwards very little. This is by much the most expeditious mode, and the most certain of giving a crop the first year; but it has this great objection, that it impoverishes the soil very much, as you give to the fire a mass of materials that would keep your crop for years. This mode of clearing does not do so well but where the growth is great and the trees not of large size.

A desire to make myself understood has made me so prolix as to exhaust your patience and that of your readers, and pretty well tired myself, but I hope you will excuse it.

A PLANTER.

ART. II.—*On the introduction of Rice and Tar into Carolina; by W. W. HAZZARD.*

Dear Sir,—In looking over a very old work to day, I found the following curious Letter, which I thought might be interesting to some of your readers, if transferred from the musty records of 1766, to the pages of the "Agriculturist."

The letter is headed "An Account of the Introduction of Rice and Tar in our Colonies." The writer, P. Collinson, observes that, "in the year 1696, my *sagacious* friend, Charles Dubois, then Treasurer to the East-India Company, told me often with pleasure, that he first put the Carolinians on the culture of rice.

"He happened on one day in that year, to meet Thomas Marsh, a Carolina merchant, at the London Coffee-House, to whom he said, 'I have been thinking from the situation, nature of the soil and climate, that rice may be produced to great advantage in your colony of Carolina:' 'but,' quoth Marsh, 'how shall it be possible to get some to try?' 'Why,' saith Dubois, 'I will query for it amongst our India Captains.' 'Ah!' says Marsh, 'it will be hard getting and mayhap of little gain.' Accordingly, only a *money bag full of East-India rice* was given to Marsh, and he sent it to South-Carolina, and in the year 1698, he told his friend Dubois, that it had thriven very well.'

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"But, from so small an original, it required a long time to spread to advantage; besides, the people being unacquainted with the manner of cultivating rice, many difficulties attended the first planting and preparing it, as a vendable commodity; for they could not well clear the grain of its scruffy covering, so that little progress was made for the first nine or ten years, when the quantity produced was not sufficient for home consumption.

"About this time, a *Portugese* vessel arrived, with *slaves* from the *East*, with a considerable quantity of *rice*, being the ship's stores; this rice the Carolinians gladly took in exchange for a supply of their own produce. This unexpected cargo was distributed, which gave new spirit to the undertaking, but was not sufficient to supply the demand of all those that would have procured it to plant. Therefore the Assembly of South-Carolina, very prudently, and with great discretion of mind, voted a bounty to encourage its importation, that there be a supply of seed for every industrious undertaker.

"My ingenious friend, *Thomas Lambol*, Esq. doth remember, that in the year 1704, being then a lad, going to school at some distance from *Charles-Town*, he took notice of some planters who were essaying to make rice grow, but could not well. In the year 1712, the same gentleman was an apprentice to a principal merchant in *Charles-Town*, who was appointed public treasurer; and he well remembers that a bounty (granted by the Assembly,) was then paid to a captain who brought in the first cargo of rice, after the bounty was ordered; this cargo came from the Straights, probably from *Egypt*, or the *Milanese*.

"In the year 1713, another ship arrived, and the captain received the bounty for bringing a cargo of rice and slaves from *Madagascar*; from these particulars it appears that the progress of raising rice, in any considerable quantity, was very slow; and it was not until the year 1715-16, that a quantity was raised sufficient for exportation; which continued to increase till 1761, when they turned their hands to making indigo, of which they made 239,629 pounds."

P. Colinson, after giving his "sagacious friend" the above curious information, which he says was "all the intelligence he could collect relating to the culture of rice," determines to give him "some light into the original of tar and pitch

in our colonies." "Before this," he says, "we were beholden to the *Northern powers* for all the tar and pitch consumed in *England*, which were imported from Sweden and Norway, and for which vast sums were annually paid.

"I was long acquainted with Captain Corram, institutor of the *Foundling Hospital*, and from him I had the following information: that he was master of a vessel in the Baltic trade; that great part of his loading was tar and pitch. He was much insensed at the extortion of the Swedes and Danes, in raising a barrel of tar to the exorbitant price of *fifty shillings*, (over \$6): but the next voyage he made to Sweden, he took an opportunity to observe their method of making tar; and as he was fully persuaded of the *practicability of making tar in the Colonies*, he determined, next voyage to *New-England*, to make the *experiment*; it succeeded, and he made the first barrel of tar in the year 1698, and brought it over (to England,) to show that it had all the qualities of the Swedish tar.

"With this encouragement, and a bounty from parliament to promote the making of tar, it soon spread over the Colonies; for my very persevering friend Lambol, of South-Carolina, doth write, that in the year 1704, he well remembers hearing some planters facilitating each other on the easy raising of *tar and pitch*, instead of *indigo*, which they had then attempted unsuccessfully.

"This public spirited man, Captain Corram, happily lived to see his single barrel the original of many thousands; as well as my very benevolent friend, Charles Dubois, who oftentimes expressed the pleasure it gave him, that he first advised the culture of rice in Carolina, and that his *little money bag full* was the original of many thousands that he saw brought over before he died, which happened in 1740, when the making of indigo was revived very successfully in South-Carolina."

I have preferred giving you Mr. Collinson's own language, as it has some peculiarities I wished to retain, as an evidence of the unsettled character of our agriculture at the time this letter was written; as well as to show the improvement we have, and are daily making in every branch of science, in every means of comfort and independence; and if we could break loose from this grasp of the monopolist, the South would continue to develop its various resources, and

send its surplus to invigorate and revive the drooping spirits of surrounding nations!

Accept my renewed assurances of respect and esteem,

W. W. HAZZARD.

West Point, 13th Oct. 1830.

ART. III.—*Directions for the Water Culture of Rice; by*
PAUL HAMILTON.

" Charleston, January, 1829.

Sir,—Some time ago I received from a deceased friend several papers on the culture of rice, with permission to make use of them. I now send them to you, with a wish that, should you approve of any, you will insert them in your useful journal. Yours, &c. W.

All tide lands of a good quality, and not sufficiently furnished with drains, are apt to produce, from the consequent dampness with the very first of the warm season, a great quantity of weeds, which are a considerable impediment to a neat and successful watering; in such fields, therefore, it is recommended that they be, about the beginning of February, laid deep under water, and kept so till the planting commences, when the respective peices may be emptied as they are wanted for planting. By this treatment the weeds are prevented, and the stubbles of the preceding crop are so beat down, as to admit of good trenching. The water being run off over night, the seed is to be introduced the very next day, and the planting of every piece completed, if possible, while the ground is wet, that the Rice may come up with speed and regularity, from which, great advantage is to be derived, as the watering will then be more equally applicable than it would be, if there stood on the same piece, Rice of different ages. No square should exceed ten or twelve acres, unless the gang of hands is large. The Rice having well unfolded, or grown to the height of three inches, if there is a prospect of much grass, the watering process commences. For this purpose, the surface of the earth is to be flowed to the depth of one foot, as instan-

taneously as can be done, and this depth preserved for any time, not exceeding forty-eight hours, the intention of which is to set afloat, all the old loose roots, stubble, and other trash, that they may be drifted, by the wind, into so small a compass, as that they may, without much work, or time, be taken up by wooden rakes, constructed with long teeth. These, if suffered to remain scattered about among the Rice, are apt to prevent its growing through the water in due time, thereby rendering the crop an uneven one, and will, in many places, totally destroy it. Having effected this necessary part of the plan, let the water be sunk to the depth at which it is intended to be kept, which, upon the general surface, is six inches. This depth being carefully ascertained, it is never again, during the process, to be increased, but exactly preserved throughout; for this end, let a mark be set in that part of the field most remote from the sluices, by which a decrease or increase of the water from a shower, or fault in the sluice, or bank, may be immediately discovered, and remedied. At the end of five days from the first letting in of the water, the Rice will be seen, lying without any appearance of strength on the surface of the water, (except its very green colour,) and pointing its leaf in any direction to which the wind drives it. After ten days, it will be observed to have gained considerable strength, and may be said to be half up. By the seventeenth day, it will have got fairly up, and will shew a fine substantial stalk, provided the depth of water has been well preserved. You may now order the water to be sunk one half in its depth, and on the twenty-first day, the whole may be turned off. As in the course of the process, the water, if steadily held, will become putrid, and contract a heavy scum, about the middle of the time it may, if a tide offers, be refreshed by sinking the depth two inches, and filling it up again with new water; in this case, the mark before-mentioned, will be found of great service. The water having been now let off you will find the crop all regular and strong, except in the deep spots and creeks, where it will always fall, but again recover, and no grass will be seen; a circumstance which must rejoice the heart of every planter, who feels that humanity for his slaves to which their lot and services entitle them; the Rice too, will be, by this system, advanced in its approaches to maturity, an advantage that must be obvious to any one who considers that from the

first of April to the commencement of the cold nights, is a season, barely long enough to produce a crop of good Rice. This watering having been completed, one material and important rule is to be observed, a deviation from which will greatly injure any crop of Rice, though it may stand on the strongest soil—it is the following:—Unless the crop suffers from extreme dry weather, the field is not to be flowed again until the Rice is jointing, which in ground that is good, and has been planted on the first of April, will be about the 10th of July, if the Rice suffers through want of showers, it may be refreshed by a tide or two at most, and then again kept dry. If the water be held five days, the crop will be shortened one third. The Planter's next business is, a judicious use of the hoe which, though not now necessary for destroying the grass, is certainly required to loosen the soil for the expansion of the roots, and to destroy as soon as may be, that putrid scum or paste left on the surface after every such lengthy watering. Let the hoeing be what is called a heavy one, that is, let the earth be well stirred as often as possible, and as soon as the branching season is over, (of which every planter can determine,) the field is again to be flowed to assist in forming a stalk and ear, the depth of this last flowing should be at first not less than nine inches through the first week, and after that, as deep as the banks and tides will admit. The water should be changed as often as a tide can be got, as the warmth of the water will soon make it too foul to be kept without refreshing, unless there are showers. This sketch is calculated particularly for the Pon Pon lands, none of which are yet in a high state of improvement. Lands in a different state may require a different mode of treatment.

First of April, begin to plant, that the watering may be over before the branching season, which is from the middle of May to the last of June.

One and a half bushels of seed to the acre, increasing as the season elapses, because the latest planting has the shortest time to branch.

Sixty-five to seventy rows to the quarter or task. Thickest sowing in the brown soil or second quality.

ART. IV.—*On the Deterioration of Lands in the upper parts of the Carolinas and Georgia, and the necessity for establishing some regular and permanent plan of meliorating the Soil ;* by A. HIGHLANDER.

To the Editor.—I shall, at all times, take pleasure in throwing my modicum into the fund of Agricultural information, which it is the object of your excellent journal to collect for public use. The first, and every subsequent number has reached me in good order; and I feel under obligations to make, as far as limited ability permits, a return for the many favours conferred on me by your more experienced and enlightened correspondents. That it has done, and will continue to do, much good, wherever read, I cannot doubt; yet I fear, that the low estimate placed by our industrious and once thrifty planters, on what they call “book knowledge,” has prevented that extent of circulation which the merits of the work so justly claim. Why a subject so pre-eminently interesting to this country, so copious and diversified in its character, should be thought unworthy or independent of its literature, I suppose many among us, however satisfied of its truth, have never put themselves to the trouble of inquiring? That lawyers, doctors, builders, dyers, and others, should read books for the purpose of enlarging their sphere of professional information, is thought to be reasonable enough; but our planters are content to receive instruction from any one who happens to be at hand, and who will *pretend* to give it. This indifference, not to say aversion, to agricultural reading, that prevails so extensively throughout the upper country of Carolina and Georgia, is at best but a blind prejudice, and, from whatever cause proceeding, constitutes at present, a fatal impediment to those changes in the arts of husbandry, which must, ere long, be introduced, or, what once was, one of the finest portions of the United States, become depopulated.

Our plantations are going rapidly into hopeless sterility, and if Cotton, or other productions of the country should rise to double or treble the present market price, the prospect before us would be scarcely less gloomy. The planter, whose worn out fields produce *nothing*, for sale, can have but little choice between high and low prices. With-

in the range of my acquaintance, there are planters, who, by means of fresh soil, great industry, rigid economy, and a convenient market, realize an annual income of eight, ten and twelve per cent. on capital employed—others, perhaps, half as much, some scarcely one per cent. and with some, it is, no doubt, a losing business, tending directly to pauperism.

As plantations are treated in most of the "hill country" of the Southern states, no definite answer can be given to your inquiry—"What price will compensate a planter for growing Cotton," because there being no system of husbandry calculated to keep the plantation in the same state of fertility—with the same expense of labour, the production is annually diminishing, and nothing short of a progressive increase of price can insure to the planter an equal income. If, therefore, ten cents for Cotton, at this time, enables him to continue his business, not less than twelve or fourteen will be requisite four or five years hence.

I have no doubt of the prudence and intelligence, which have dictated to us the introduction of new articles of agricultural production, the Cane, Silk Worm, Dye Stuffs, &c. as mentioned in your late letter—but I am very certain that the highest desideratum to Southern planters, is the adoption of regular and permanent plans of *meliorating the soil*. There is scarcely in any part of the United States, a more robust, active, or labourious yeomanry than is found in the upper country of the Carolinas and Georgia. Give them soil and stimulating prices, and no people can out crop them. They are, however, for the most part, as unused, and as disinclined to give time and attention to *manuring*, as their predecessors, the Catawbas, Cherokees, and Creeks; but manures and other meliorating processes are absolutely indispensable in all countries and climates to the continued prosperity of the cultivator. Indeed, no one at all acquainted with the history of cropping can doubt the extreme absurdity of expecting the soil to bring forth its fruits without those regular, periodical aids which can alone be furnished by an enlightend husbandry.

These remarks are offered chiefly for the purpose of calling the attention of your readers to this all important subject. Perhaps some one more sagacious or resolute than the rest, may already have made a lucky experiment, demonstrating the feasibility of retrieving an exhausted cot-

ton field, or preserving its pristine fertility—if so, in the name of patriotism, let him speak, let him give us the ways and means in detail, and with such precision as will enable all of us to determine on the expediency of bringing up our paternal estates to a condition of profitable use, or on that dire alternative, an inglorious flight to the woods, wilds, and durances of our Southern or Western frontier.

HIGHLANDER.

Georgia, September, 1830.

ART. V.—*Observations on the many stalked Mulberry*; by
J. COUPER.

“ St. Simons, 16th October, 1830.

Dear Sir,—In the last number of your *Agriculturist*, I notice a description of the *many stalked, Chinese Mulberry*; stating it to have been introduced into France in 1821, by M. Perottet; and into the United States, by Dr. Felix Pascalis, of New-York, and by Gideon B. Smith, Esq. of Baltimore.

Without wishing to detract from the merits of those gentlemen, I beg leave to give my opinion, that the Chinese Mulberry has been long known in France, and is the same you now describe, though without the name (*many stalked*;) and was brought from thence, to this country by the Marquis Chapedelaine, above forty years since, who, with other French gentlemen, had formed a settlement on Sapalo Island. The Marquis put two plants on board of his vessel, male and female; the last died at sea, and the other was planted, and prospered on Sapalo, from whence it has been generally diffused in this neighborhood.

The great disposition of this tree to put out suckers from the roots, even to a great distance, may have given it the name (*many stalked*) yet it may easily be trained to trees, which are rapid in growth, and equally so in decay. It agrees perfectly with your description in the ease with which it can be propagated by cuttings, and as far as I can comprehend your description of the leaves, they

agree; though to plain farmers, like me, *arepetiolate*, *cordate*, *accuminate*, are too learned. I shall give you a description of our Chinese Mulberry, in plain language:—The bark of the shoots are hairy, like the young horn of a buck, or branch of the shumac—the leaves assume various shapes, even on the same twig; some are indented like oak leaves, others heart-shaped; others heart-shaped, with an irregular scoop taken out of one side. In size, they resemble your description. The blossoms of the male plant (for we have no females) are about three inches long. I am unable to give you a botanical description, but will mention a circumstance, singular to me—when those trees are in full blossom, in the spring, I have observed (in a fine calm day) *ever* and *anon* explosions of farina, something like the puff of a segar, and as those firings were in quick time, had a pretty effect.

I was pleased with the tree on Sapalo—obtained cuttings, and set out an avenue of fifty trees, about thirty-five years ago—they grew rapidly, but from hurricanes, storms, and natural decay, only half a dozen ragged trees remain, they have, however, sent out suckers far and near, and I have had much trouble in grubbing them up.

It occurred to me some time ago, that if the leaves of those trees answered to feed silk worms, raising silk would be an easy matter, but was prevented trying, by information that the leaves were too harsh.

The time taken to raise plantations of the white Mulberry, and the knowledge I had, that strong men were required in April, to strip leaves, a time when such labour was required for other crops, prevented my making any attempt on silk.

It does not require the gift of prophecy to foretell, that if this Mulberry answers the purpose, silk will soon become an article of interest. My ideas of the culture, agrees with yours described. The second year, after the cuttings are set out, will afford abundance of leaves, and every year after, more. To keep them within the reach of children, they will require to be cut down every two or three years. After feeding silk worms in the spring, the leaves, in the fall, will feed horses, who are excessively fond of them. The bark is easily stripped from the roots, and after the outer rind is removed, there is left a white tough bark, which I believe to be the substance used in Otaheitie for their cloth.

If you put the point of a knife into the bark, it is followed by a milky sap, *in a stream*.

Abundance of cuttings of this Mulberry may be procured at Darien and its neighborhood.

Now, my dear sir, if the Mulberry I describe is not the identical Chinese many stalked Mulberry, of Perottet, pray inform me what it is?

I am, very respectfully, dear sir, your most obed't serv't.

JOHN COUPER.

N. B. I inclose you three leaves, the smallest I could find, just put out.

Note.—The Mulberry to which our correspondent alludes, is not the *Morus Multicaulis*, but as far as we can form an opinion from the leaves, and description, appears to be the male Japan Mulberry, (*Bronssonetia papyrifera*.) It is used in this place for the purpose of forming shade, and our streets are bordered with these trees, together with the Pride of India. We have never known the leaves made use of for feeding silk worms.—*Editor*.

ART. V.—*On the Culture of the Guinea Grass ; by L.*

"23d June, 1827.

Dear Sir,—I will, with much pleasure, answer as far as I am capable, your inquiries relative to the Guinea Grass.

In the spring of 1824, I purchased one gill of the seed, I think from Cox, and sowed it in drills about a foot apart, (sometime in the month of April,) but not a single seed germinated. A short time after that, I procured from a gentleman, about one ounce of seed, which I planted very carefully on land well pulverised and highly manured, from which I procured from between fifty and sixty plants, which were transplanted at the distance of *three feet square*. I began to feed my horse with it about *the 1st of July*, and cut it on an average, *once a fortnight*. It appears to me, that if

they are not transplanted, they do not branch well, although they grow to a considerable height. I have this year left a part which I sowed (broad-cast,) to ascertain the difference between its growth and that which was transplanted, but find it grows tall, but does not branch in comparison to that which was transplanted.

The first year, as I observed, I found it difficult to get the seeds to germinate. Since which, I collect the seeds before frost, and have generally found them to come up abundantly. When I observe the seed begin to ripen I make a servant hold a paper, and then shake the bush, by which means I collect a large portion of seed, enough to plant acres. If the seeds are not collected as soon as they are ripe, they drop. I generally sow the seed about the middle of March, or beginning of April. It takes from two to three weeks to come up—most commonly three weeks. I then transplant it as soon as it is four or five inches high. This year I transplanted none from the seed which I planted, finding that that which sprung up from the seeds which fell on the ground, grew more luxuriantly than those which I sowed. From a piece of ground about *eighteen feet square*, I have myself collected and transplanted about four hundred roots, and given to my friends upwards of two thousand roots more, and have left upwards of five hundred, which I intend setting out to-day. I once endeavoured to ascertain the rapidity of its growth, and I found that cut in the morning, had, by 6 o'clock in the evening, sprouted about two inches. Two hundred plants, and even less, if planted in rich, loose soil, will feed a cow or horse during the summer. A horse cannot devour more than eight of the bunches (I mean of the plants,) in twenty-four hours. I give it as a substitute for fodder. I usually commence cutting it towards the latter end of June, or commencement of July, and feed my horse with it till frost. If it were planted in drills, and not intended to be transplanted, I should suppose three feet from drill to drill, would be sufficient. On this point, however, I am unable to give a decisive answer. Two hundred roots planted at the distance of three feet square, will feed a horse or cow during the summer. An acre, I should imagine, would feed a drove of horses.

Very respectfully, dear sir, your obed't serv't,

L.

Note.—It is now satisfactorily ascertained, that the most certain, as well as the easiest mode of obtaining plants of the Guinea Grass in the spring, is to permit a part of the plants to seed, and deposit them on the ground as they mature, and to have this turned under and protected during the winter. The plan pursued by a friend of ours, is this: He selects a piece of rich ground, which is planted at the time the rest are set out; these are not disturbed during the whole season, but ripen their seeds, which drops as soon as matured, and by the time it is necessary to protect it from the effects of the winter, the ground is found thickly covered with seeds. On the approach of winter, the grass is all cut off close to the roots, the old roots taken away, and the whole of the bed lightly turned under. It is then raked smooth, and the grass which has been cut from it, spread over. This has been found sufficient protection for the seeds. As soon as the spring opens this covering is removed and the bed lightly raked, and in due time the young plants appear in great quantities, and are of a size fit for transplantation earlier than those which are raised from seeds sown in the spring. This valuable grass is becoming naturalized to our climate, and as it affords the greatest product of any at present known to us, it will prove a real blessing to these States. From some facts which have come to our knowledge, we are strongly in hopes that it will become so far climatized as to resist the coldness of our winters, (except, perhaps, those which are extremely severe,) and resume its native character as a perennial.—*Editor.*

ART. VI.—*On the Cultivation of the Sweet Orange; by*
GEO. J. F. CLARKE.

(Continued from vol. iii. page 639.)

NO. III.

We have lived in a mistake with respect to the superior hardness of our sour orange trees to the sweet; and it has produced a considerable share of injury in their use as weather borders. The sour and bitter sweets are of indigenous growth in this country; the sweets, as I have said before, are not, nor never can be brought to live here in a wild state. This, however, is not from the want of what should be understood as a hardy character—the power of bearing much heat, cold and drought; but probably, from this local cause, that their disposition to profuse climbing, which is an evidence of a vigorous character, forwarded by

the congeniality of the climate, gradually smothers them in the density of their own foliage when entirely abandoned by man. They grow wild, of course, in their original climate, but that, recollect, is one of great heat, in the neighbourhood of the equator; which keeps them down from an excess of vigour, as it appears by their not growing there to near the size they do here.

This, however, the sum of my observations assures me of, that the sweet will bear as much cold, and more drought than the sour; and when injured by either, will regenerate or grow out the damage in much less time. Moreover, the sweet are less precarious in planting from the seed, and in transplanting from the nursery; they thicken more in their limbs, if allowed to do so, and when weather-beaten on the windward side, they bear a crop on the leeward worth one to ten leeward crops of the sour, placed in the same situation. Here then are six circumstances in favour of shelters being made of sweet trees in preference to the sour; while I find but one under which the sour ought to be preferred; that is, where sweet trees are scarce and sour ones plenty. The sour are more hardy only inasmuch as they will live surrounded and covered up in a dense and lofty wild growth, where the sweet will not.

But, impressed with this unexamined opinion, the prejudice in favour of the sour, we have generally overgone, and profusely so, that boundary line common to all things, where good ends and evil begins. We have crowded them into places where no shelter was wanted, being already covered in by groves and houses, as in the most exposed situations; as though we meant not only to protect the sweet by the presence of the sour, but to force into them, the supposed superior hardness of their nature. And by this means they are interspersed through this general grove of all the city, in harm to the whole, by crowding the already too close growth, imbibing moisture, exhausting nutrition, and impeding a free circulation of air. And they are of no good to the owners, the fruit each year being left to fall and rot.

Besides the general harm that must attend on this crowding, and another injurious effect I shall mention below, some fine young groves have been destroyed within my memory, principally, I believe, by this *protection* of sour trees, and others are declining. Room and free air are indispen-

sables to an abundance, and fine perfection, of not only oranges, but every kind of fruit. Even oaks, that are valued only for their timber and tan, will grow much faster and finer by thinning, trimming, and keeping out a superfluous growth. In England their oaks enjoy more culture and care than our best tended orange trees, and in only the timber and tan, (not an annual, but a half centurial return,) they invariably pay well that labour and acre.

One of the groves to which I have reference, went to ruin in the hands of a very industrious owner, who, no doubt, used every care for its welfare but that of exterminating the dense borders of sour trees, which were annihilating it and themselves, and died together, injuring its neighbours—I experienced a part of it. It has been replanted and bears a handsome growth—this at least shows, that the soil contains nothing contaminating.

Another grove adjoining, was far advanced on the same road to ruin, when I advised the eradication of the sour borders; and in a year after the good effects were plainly notable. The same has been purchased this year by a gentleman but the other day from Carolina, probably not cradled among orange trees, but he immediately cut up every root that impeded the hoe, broke up the soil, scoured the bodies, sawed off the dead and sickly limbs; and there already it stands a smiling evidence of his industry, and a censure on our age of neglects. Let the owners of half dead and alive groves keep an eye there for a year or two, and I am very much mistaken if they do not very much regret not having sooner taken theirs in hand in the same way. It is high time that we should be convinced, that the *convenient practice* of keeping the soil hard to save it, of letting the weeds grow to keep it moist, of throwing in our shells to cool the roots, and having sour trees to protect the foilage, will not do.

There is another evil growing out of this extensive interpersation of sour trees among our sweets. An amalgamation is progressing, which, though hidden from our perception by its naturally slow course, as surely arrives at completion, if not arrested, as water at its level; and whose advance in this case must be peculiarly accelerated by the facts, that we never import new subjects, nor propagate but from the seed; and *our course of care* has the effect of so greatly limiting the natural life of our trees. Nor is there

any possibility of arrest but by the removal of the sour, for we shall never fence out the winds and the bees.

In the fourth place, we mistake in supposing that low rich soils, and abundant manuring, are favourable to the growth and quality of our sweet orange. The firm parts of what we call 'rich swamps,' designated by the term of 'low hammoc,' are, evidently, nature's favourite indigenous nurseries of the sour trees. There, however, they rarely, if ever, reach the size to be ranked with trees of the third class; I never saw one that did. But when placed on high sandy soils, they are frequently found in the second class; while the sweets, raised on the same, and properly tended, ascend and spread their neat, gay, and fragrant foliage, in the first class; but will not live in nature's low rich nurseries of the sour.

I am no enemy to the sour-orange tree in its place; on the contrary, I lament the entire dereliction we have long shown to an article so grateful to man, and susceptible of so much profit to this country. Many thousands of dollars could be drawn, annually, from our wild groves, for only the comparatively small trouble and expense of squeezing, and taking the juice to market. In the seaports of the northern states it has usually sold on an average of about twenty-five cents the gallon. I once sold a large quantity in Norfolk, Virginia, at one hundred and ten cents the gallon; purchased for the use of the British navy. The former extensive commercial house of this country, Panton, Leslie & Co. has shipped, in our more industrious days, of their own squeezing from wild groves along the shores of St. John's river, from sixty to a hundred puncheons in a season. If we would plant them out extensively in proper groves, the juice would soon get into universal demand as a cheap, most desirable, and salubrious beverage; and particularly so in tropical, and all long voyages, from its highly anti-bilious and anti-scorbutic qualities. Such is my reliance on its corrective virtues, blended with palatable qualities, derived from long experience, that I feel no apprehensions of bilious attacks, among persons of my concern, while I can keep a barrel of it on tap for liberal use. Moreover, it is capable of rendering a larger income to Florida than the sweet orange. But it has no business whatever among our sweet orange trees.

In a profuse use of manure we have not been in the habit of sinning, intentionally, in any culture. I never knew but one who did, to the extent of a grove, and that affords a miserable specimen of success. Many of our lots, from having been stable yards, cow-pens, and hobbies of heels-over-head gardeners, in days of industry; and having acquired a large addition of oyster-shells, (which occasions a black colour) form a deep heavy soil, excellent for gardening; but, on becoming groves, do not produce so fine an orange as those that have remained light, thin and sandy.

So averse are our sweet-orange trees to much, and particularly fresh manure, that the pening or nooning of cattle or horses among them, the passage of foul gutters by them, the proximity of privies, even the frequent use of the wash-tub under their shade, soon bring on unequivocal symptoms of disease. I had to move off a privy, of only about a year's standing from between two very large and fine sweet trees. The sides of the pit had not been sufficiently walled, and some seemingly inconsiderable roots of each, whose ends had been cut off in the digging, had got within, and threatened their destruction in a few years. After the removal they recovered their wonted healthy appearance.

The differences in the quality of the orange, to which I have reference, as arising from the soil, are these. The light sandy lands produce them with a very thin skin, crowded with juice, and that more luscious; the dividing integuments of the plugs, more thin and tender; and, when fully ripe, they partake of a slight but fine musky flavour, much like that which gives preference to the numerous family of the muscat grape, over all others, as a table fruit. And some such strongly marked features in favour of light sandy soils, attend our fruits and roots generally; and not only such as are of a saccharine quality, but limes and lemons are more aromatic and more acid;—the red pepper, more spicy and piquant, &c.

In conclusion, Mr. Editor, my course being somewhat new, in both theory and practice, it would be very extraordinary if it did not meet with opposition and ridicule:—old habits and fixed prejudices are stubborn things to contend with; the one becomes a part of ourselves, the other shuts up the avenues to reason; only ocular demonstration can at once prostrate them. But I hope it may be met by lesser knock-him-down arguments than these—that the old

must be the better method ; that they who have lived among orange trees all their lives must be their better doctors, at least they must have had a deeper peep into nature's band-box of secrets ; that A, planted a tree with a tub of manure, and another with a wheel-barrow of oyster-shells ; and that B transplanted one as it stood, north and south, in the nursery, and reversed the poles of another. Many, too, may say, they in vain tried to cultivate them in their fields. I know it—they were yearly, one-third of it tilled, or smothered, which you please, in a corn crop ; and all the rest of it buried in weeds and vines, excepting late in winter, when, being the only green food at hand, the cattle regularly eat them down to the stump.

There are vine-dressers, even in France, who will not admit an iron crow-bar among their vines, because it poisons their roots ; and I know we have orange-dressers in this country fully as wise as they.

GEO. J. F. CLARKE.

ART. VIII.—*On the Agricultural prospects of the Middle Country, (S. C.) ; by A PRACTICAL PLANTER.*

Mt. Vintage, August 7, 1830.

Dear Sir,—In answer to your inquiries—"On the present prospect of the section of country in which I live—if cotton, at the present prices, will remunerate the planter, and, in the event of the price going still lower, what will be the resources."

In the first place, I would remark, that there has been a system of economy pursued, of late years, that has, in a great measure, relieved the embarrassments of the planters, occasioned by previous high prices of cotton, and an inducement from these high prices, to purchase property at high rates, on a credit. A sudden and great reduction in the price of cotton, nearly made bankrupts of the whole district, those only were safe, who, from their caution, did not purchase, and those who adventured on their own means, without resorting to security. This system of securityship, without having a counter claim, has been a great bane to this section of country, and particularly to this district. Cotton, at 9 cents,

will afford a comfortable support to the planter, but it will not sustain him, if his daughters are to be brought up for the drawing room, or his sons for the court.

The last question is the most difficult of solution. To be sure, if cotton comes down to six cents, our case will be deplorable; but what can be substituted in its room. This is not a productive grain growing section of country, and even if it were, and we were to resort to it, the reduction of price from over supply, would be a greater evil than cotton at six cents. The grape has not succeeded, either from the want of treatment, or the proper kind, probably both, as well as the climate, which is adverse to it, from its instability. The same treatment of the vine in Germany, will not suit the Island of Madeira. In the former, it is necessary to dispossess the vines of the superabundance of growth, to give admission to the sun. In the latter, this treatment would be injurious, if carried to the same extent, for there they want a protection to its scorching influence.

Should we think of silk, it will probably be as bad as the grape; it will take years to provide for such an engagement; and after all, could our force be employed in either? If we resume the planting of indigo or tobacco, the quantity made of the first, would be more than sufficient to supply the whole world, without taking into view the supplies from other countries, and our lands are too much exhausted to attempt tobacco. If we turn our attention to the cane, our latitude will not admit of its perfecting, to make it an object for sugar, notwithstanding so much has been said and written in its favour. Molasses, syrup and rum may be made from it; in the two former, we shall be rivalled by the West-Indies and Louisiana; and whiskey and temperance societies will destroy any expectation from the latter. The only resource that presents itself, is a general retrenchment—this, however hard it may appear, is the only relief to which we can resort. Were not our forefathers, previous to the revolutionary war, with less resources than we have, more independent (in point of pecuniary circumstances) more happy and comfortable than we are? To what cause is this to be attributed? industry and economy alone. Have we inherited this, as we have their estates? Ask any old revolutionary inhabitant of Charleston, at this period, how many coaches, with their retinue, were

drove to the city (then town) by planters, and if stick-back chairs, with a servant in attendance, was not the most common mode of visiting it? If there were any Balston spas, Saratoga springs, or tours to Canada, by the way of Niagara or Champlain, to drain the planters of their surplus cash? No sir, in those days, the planters generally resided on their plantations, or in its immediate vicinity, where they could have an opportunity to inspect their planting operations, not trusting it to others—saving the money now thrown away in pursuit of pleasure, without its attainment, and adding, annually, to their property.

I have trespassed on the limits of your inquiries, but the picture which I have attempted to draw, will, in some measure, apply to every section of our country. For we know that fashions are imitative, and that villages take them from cities, and this is transferred to the country, creating a disposition for extravagance to all classes which causes the frequent complaints of hard times.

A PRACTICAL PLANTER.

ART. IX.—*On Plantation Gardens, and the Culture of Vegetables; by the EDITOR.*

(Continued from Vol. iii. page 577.)

Irish Potatoes.

The Irish potatoe is cultivated in small quantities in almost every garden, and is, therefore, one of the articles which we recommend to be in the plantation garden. It is both wholesome and nutritious, and at that particular season of the year when we commence eating it, it forms an agreeable variety of food. It is not, nor ever likely to be, cultivated in any very large quantities among us. Our climate is unfavourable both to its growth and preservation; when we say to its growth, we do not mean to be understood that it cannot be grown in considerable quantities among us, but merely that it does not arrive at that perfection which it does in more northerly climates. As to its preservation, it is well known, that it is almost impossible to keep it through the summer* It is, therefore, cultivated only in such quan-

* The Irish potatoe arrives, here, at a size large enough for use in May, and in June and July they arrive at their full growth, after which time, if left in the ground, they commence rotting, and as yet we have discovered no mode of preserving them when taken up.

tities as can be consumed within a certain time, and never, we believe, with a view to their being kept, unless it be by a few farmers, for the daily supply of the market, who are content to sustain the loss occasioned by their rotting, in consideration of their increased value.

In selecting a spot for cultivating them, we would prefer that which is low, and of a strong loamy nature, rather than that which is high, light and dry. This, we are aware, is contrary to the recommendation of almost every writer on the subject, and also to the general practice of the country. But all of these writers are of a climate essentially differing from ours, and of course the culture recommended, is to be understood as applicable only there, or in similar climates. In Great-Britain, where the climate is cool and moist, the practice is to plant only light and dry soils—they would not thrive on any other. From that country we derived our ideas of the culture of this vegetable, and have faithfully followed their practice, without any alteration, except as to the time of planting. Now, it is reasonable to suppose, that, in a climate like ours, both hot and dry, where we suffer more frequently from absence, rather than excess of moisture, other soils would be found better calculated, than such as we have hitherto been in the habit of using; yet we do not find that this has been attempted, but high and light soils are still preferred, and will be for some time, until further experiment and a greater attention to their culture shall have demonstrated that we are in error on this point. Old opinions and habits are not easily got rid of—it requires time to effect a change. Mr. William Wilson, of New-York, is the first writer, (with whom we have met) who has undertaken to combat this error, and to recommend a different soil for the culture of the Irish potatoe; That which he deems most proper, after “more than twenty years careful observation and experience,” is a strong heavy loam, and our experience fully corroborates this;—the best and largest crops we have ever raised, were on such soils.*

The ground being selected, the next consideration is, as to the variety to be planted. This appears never to be thought of by our farmers. An Irish potatoe to them is an Irish potatoe, and whether it is good, indifferent or bad,

* For many interesting particulars relative to their culture, we refer our readers to his communication, republished in the first volume of this journal, page 414.

yet it will serve for seed, and answer as well as the best, but that this is not the case, whether we consider the flavour or productiveness, we refer our readers to the experiment made by Mr. Whyn Baker, and detailed in our review of Sir John Sinclair's pamphlet, on the culture and uses of the potatoe.* It will there be found, that one of the varieties (the "black") produced *one hundred and eleven barrels* to the acre, whilst another, (the "crones") produced only *sixty*. This experiment places the importance of a judicious selection of seed in so strong a light, that we scarcely think any one, who peruses it, will be careless, hereafter, on the subject. But if we recognise the importance of selection, yet we may be asked from whence are we to obtain these good varieties, and when obtained, how are we to preserve them. It is true, that the same indifference which has proved our bane, has characterised our northern brethren, from whom, at present, we receive our supply, and consequently we have been served only with inferior potatoes, which we have been content with, but they are now alive to the subject, and finding it as easy to raise those which are good as those which are bad, moreover, that the former are the most saleable; they will soon expell the old waxy varieties with which they are usually inundated, and substitute the fine mealy ones. This has already been done, to a certain extent, by the market gardeners there, and until it becomes general, we can always order on a supply of such as we prefer. But we ought not to depend on others for our seed, we ought to attempt to originate some varieties among ourselves, and as this can be easily done, we hope, that some of our farmers will attempt it. Nothing more is necessary than to save the balls of the Irish potatoe, when they are ripe, and permit them to dry—early in the spring succeeding, plant the seeds on a light piece of ground, they will come up very thick, and as soon as they are large enough to be handled, they ought to be set out at a distance of two feet apart each way, they are afterwards to be treated like plants from sets, that is kept free from weeds, and earthed up as they grow; as soon as the tops die, they are to be dug up, *and the product of each plant* kept separate; they will, in all probability, not reach a greater size than a pigeon's egg, and some will not be larger than buck-shot, none, however, should be thrown

* Vol. 3, p. 38.

away, but carefully saved, and the following spring, the product of each plant should be sown apart, exactly as potatoes usually are. When their stalks again die down, they can be then taken up and examined—those which, on trial, prove good, can be retained, and the others thrown away; though we would recommend some caution, as it has been found that those which appeared finest, on the first trial, did not prove as good as was expected, whilst those which were thought to be inferior, proved afterwards very fine. The dying of the stems will indicate the earliness of the several varieties—those which decay first being the earliest. Should this plan be adopted, we may soon have varieties better suited to our climate than any we can import, and which will, whilst they possess the fine flavour and mealiness of those of Europe, will have the power to withstand the heat of our climate, and continue good and fit for use at those seasons of the year when we cannot, at present, have them.*

Whether potatoes should be planted whole, or be cut, and if cut, of what size they ought to be, are questions which have long been discussed, but which have not been settled even at this time. We may, perhaps, arrive at some conclusion, if we consider that one of the principle uses of the sets is to afford nourishment to the shoots until they have shot out roots, when they are supplied with food by those, which are drawn from the surrounding soil; the object, therefore, should be, to have sets sufficiently large to furnish this nutriment, until the roots be able to supply it. The size should, therefore, be regulated by the season at which they are planted. If they will have much cold and unfavourable weather to pass through, they should be large, but if, on the contrary, it be at a favourable season, they may be small—for instance, those planted in November or December, should be large sets, because their growth will, at first, be slow, and, moreover, they will be exposed to casualties, which those planted later will not be subjected to. Again, those planted in February, may be small, one or two eyes only, because being on the verge of spring, their growth will be very rapid, and little is to be feared from their tops being killed.

* We have on hand, some experiments on the raising of potatoes from seed, which we will detail, when concluded.

Nor is it a matter of indifference what parts of the potatoe are used for seed. We have satisfactorily ascertained, that there is considerable difference between the top, middle and bottom, as to earliness and productiveness. The top is several days earlier than the middle, but there does not appear to be any very great difference in their product; Between these, however, and the bottoms, there is the greatest difference, the latter are not only much later, but scarcely yield any thing. We would advise, therefore, that the tops and middles only be planted, and these should also be kept separate, as the tops will furnish the earliest potatoes. The bottoms may be used for feeding cattle or hogs.

Having every thing ready, proceed to break up the ground and lay it off into deep furrows, at three and a half or four feet distance, into these the manure should be spread in considerable quantities, and the sets planted eight inches apart. The best manure to be used, undoubtedly, is, that taken from the stable, and next to this, that from the cow-pen. We have also used the top soil, brought in from the woods, but although the potatoes were numerous, they were small. The planting being finished, let the plough proceed to cover them by throwing a couple of furrows on each side. The tops of these ridges may be levelled with a harrow, if on high dry ground, but if in low land, it will be best to preserve the ridge—but even in that case, their tops should be passed lightly over, so that they may be level, otherwise the potatoes will shoot through in every direction, (being powerfully acted on by light) instead of in a line, as planted. As soon as they appear above ground, some advise to pass the harrow over the whole field, with an intent to loosen the soil, and at the same time destroy the young weeds—this treatment appears harsh, and many of the young shoots must necessarily be injured, but the advocates of it affirm that the benefit to the crop, far exceeds any injury which it may be supposed to sustain. This process may be necessary, where large quantities are planted, but we would recommend, in its stead, the use of the cultivator, running it as near to the plants, on each side, as possible; the small space untouched by it, can be gone over by the hoe—the benefit will be as great, and the plants remain uninjured. After they are several inches high, it will be proper to make free use of the plough, running it close to the plants, and throwing the

earth from them, which is immediately to be returned, this leaves the soil in a light and pulverised state, into which the roots freely push in search of food, and the tubers readily enlarge. Only one side of each bed should be thus treated at a time, in order that the plants may receive no check from having too many of their roots cut off at once. As they continue to advance in growth, they should have earth thrown up to them by the plough, and when this can no longer be effected, the hoe may be used, if the bed be not high enough, which, however, will rarely be the case. As soon as blossoms appear, let some young hands be sent in, and have these, and all of the buds plucked off; they materially lessen the product, especially if they form seed balls, as it has been proven that the same nourishment which goes to nurture the seed, forms the tuber. As soon as the tops commence dying, they may be gathered, as this is a sign that they have ceased to grow. Some, however, may be dug before this, and when they are wanted very early, the sides of the beds may be carefully drawn down with the hoe, the large tubers taken away, and the earth carefully returned; the plants will continue to grow, and those left, will reach as large a size, if not larger, than they would have done, if no such operation had taken place, but it must be remarked, that only one side is thus to be treated at a time, and that a sufficient period must elapse for the plant to recover itself, before the other side is touched, say from ten to fourteen days. We have, at times, practiced this plan with success, and know, therefore, that no *apparent* injury is sustained.

With one more remark, we will close this article. The potatoe produces its tubers from the stem, and not from its roots. If, therefore, it be buried at but a very little depth below the surface, and be not earthed up, it will produce only a few, but as the whole vigour of the plant will be directed to the maturing of these, they will be both large and early. If, however, they are planted deep, and also not earthed up, they will produce more than those planted shallow; but in pushing through the soil, they will form long joints, and as the fibres, which produce the tubers, proceed from these joints, they will not be very many, though they may be large. If, however, they are planted at only a moderate depth, and earthed up three or four times, they will afford a larger number of potatoes,

but these will be smaller than those not earthed up. The cultivator will, from these statements, be able to determine for himself which he would prefer. With respect to planting potatoes, during the summer, for winter consumption, we have not experience enough to give any directions or advice; we are now prosecuting the subject, and will, we hope, be able, hereafter, to lay some interesting facts before our readers.

ART. X.—*Query, from a Marsh planter to a Black River planter, relative to Bearded Rice.*

Dear Sir,—Perceiving in your November Number a piece signed “A Black River Planter,” treating on the culture of the bearded rice, permit me through the medium of your useful journal to propound to him a few queries for the rice planters, generally.

When did he plant this rice? the quantity sowed per acre? the quality and quantity of land planted?—preparation and cultivation given. When harvested? what the product and weight per bushel? When milled? what did it yield of clean, whole, middling, and small rice? as, also, how much hull, chaff and fine flour, to the twenty bushels? As these are the all-important substantial qualities required, a satisfactory result to the inquiry would remove many doubts that now exist among planters respecting this grain. And, though last, not least, at what price did the milled rice sell?

Respectfully,

A MARSH PLANTER.

November 20th, 1830.

PART II.

REVIEW.

ART. I.—*A Treatise on the Breeding, Rearing, and Fattening of Poultry.* London. 1819.

So thinly scattered is the population of the lower part of these states, that whatever may be the wealth of the individual, and whatever may be his power and resources in other respects, yet he has to rely almost entirely on the product of his plantation, whilst residing on it for the daily supply of his table. His garden and fields supply him with vegetables, and his cattle, sheep, hogs and poultry with animal food, so that with the exception of a few luxuries, which habit has now caused to be considered as necessities, he can live within himself. His principal supply of animal food is, however, drawn from his poultry-yard, and if this be either neglected or mismanaged, he feels the loss most sensibly. The rearing of poultry is, therefore, made the peculiar business of some one of every plantation, and to this person is intrusted the whole management. If she is skilful, observant, and attentive, a large supply is reared, but the slightest neglect is the occasion of considerable loss, and, sometimes, a single error, occasions the loss of the whole brood. The great quantities which are reared among us, of the various species, even by those whose time and habits permit them to bestow but little care, induces many to suppose that it is no difficult matter, and that it can be successfully managed by almost any one, but let these either undertake it themselves, or should this be too slow a method, let them inquire of the most successful, and ascertain from them, what number of the eggs set on, produce young, and how many of these are reared to a state fit for the table.

We have not, as yet, felt in these States, that strong necessity for attending to these small matters, which so heavily presses on the inhabitants of Europe, and, therefore, are ignorant of many things appertaining to them. We have been forcibly re-

mind of the correctness of this, by overlooking the work which we propose now to review. In it we find not only the best modes of rearing the various species, but an account of their diseases and remedies, together with many curious facts and observations, so that the work, of itself, is interesting, were it merely for these. This will be better illustrated as we proceed than here.

The work is by an anonymous author, and although in English, yet appears to us to be (although not purporting to be such) merely a translation from the French; at any rate it is written by one acquainted with all that has been written by French authors, and well versed in all the practices of the French districts—who, in fact, appears to have had personal experience. The preface is short, and merely states that the object of the work is to introduce “a general mode of treating poultry, on the French plan, which is said in France to succeed.” There is no introduction, and our author, at once, enters on his subject. He treats of the several species, in distinct divisions, commencing with the turkey, and continuing with the goose, duck and fowl.

He describes, in the first instance, the wild turkey, which may be interesting to Europeans, but cannot be to us, who know most of their habits, either of our own knowledge, or from the report of our neighbours—then follow some remarks on the domestic turkey, and some objections to the rearing of them are replied to. The varieties are then noticed, which, in France, are principally the white and black;—“their mixture has produced a great number of varieties.” A preference is given to the black.

Their habitation should be kept very clean, and, if possible, they should be permitted to roost in the open air. The practice of giving stimulating food, “in order to induce the hens to bear the approach of the cock, and to augment her fecundity” is condemned as not only useless, but even likely to prove injurious.

“The plumpness or leanness of the hen, the climate or localities, will alone forward or retard her laying. By feeding and taking proper care of her in winter, she will be disposed to lay earlier in spring, and to begin afresh at the end of summer. Nature seems to have taken all the trouble on herself.

“Though one has but a certain quantity of turkeys, one is obliged to have a proportionate number of cocks. Twelve females must have one cock, but if it be true, as some observations seem to prove it, that once treading is sufficient to fecundate the whole laying, there is no doubt that, although the expense of a cock be not very great, it might be sold to great advantage immediately after the laying of the eggs.”

Our author asserts, that “the turkey hen, notwithstanding what Buffon says, almost constantly lays twice a year,” and in the southern parts of France “it is possible to obtain as much as three lays, and very easily two broods.” This, we believe,

seldom, if ever, takes place with us; at least we have never known of a single instance, and we, therefore, incline to the opinion that Buffon is correct. The laying is an infallible sign of their health; and one of the advantages of keeping them, at night, in houses is, that it can be ascertained when they are with eggs, they then can be confined until they have laid, which cannot be when they roost abroad. A turkey will lay from fifteen to twenty eggs, and "a female two or three years old produces more, and almost constantly, larger eggs than those of a hen only one year old." Before she completes her laying, she shows a strong desire to set, and will keep her nest, although there be nothing in it; it is, therefore, proper to mark the eggs given, so that it may be ascertained whether any others are added to those placed under her. It is seldom that a turkey hen requires any stimulus to excite her to set, but should it be ever found necessary, our author gives the following directions:—

"This may be done with still more certainty, as follows: the bellies of the females are dipt in cold water, plucking the feathers from underneath it, and flogging them with a sprig of nettle, keeping them warm on a layer of straw; they may be also made drunk with bread soaked in wine and a little brandy; and in this state of intoxication they are placed on those eggs intended for them. On recovering, they seem to have already taken an affection for them; they continue to set on and take care of them, and become as good mothers as those who had shewn the greatest disposition to fulfil the duties of that situation."

Whilst thus employed, the setters should be kept quiet and at ease; they are naturally very timid, and should not be disturbed by the frequent entrance of any one, or of those to whom they are unaccustomed. The nests should be placed in some dry, dark, and warm situation, and at some little distance apart, so that they may not rob each other of their eggs.

"The nest must be formed of a circular pad, or roll, stuffed with matted straw, and about fifteen or sixteen inches in diameter; the inside must be filled with soft bruised straw, on which the eggs are laid, which being secured by the border we have just spoken of, do not roll about the nest, when the setter makes a motion to get in or out of her nest, or to turn her eggs."

It is advisable to set many hens at once, and no attention should, therefore, be paid to the inclinations of those who are first inclined to set. The advantages of setting many together, are,

"That if any accident happen to the setter, it may be remedied by giving up to another those eggs that are hatching, or ready hatched; besides, the young ones being all of the same strength, they do not starve the weaker ones. It is easier and more saving to rear them in this manner, in flocks, under the direction of a number of *turkey-hens*, than to leave each family to its mother.

"Another advantage derived from this practice, is to determine the females to set a second time on the common fowls' eggs; or still better, to recommence laying a second time. In fine, when two broods of young ones are given to one *turkey hen*, it is a means of procuring repose to the weaker one, and of obtaining sooner a second laying of her.

"But when eggs, or chicks, are about to be slipped under another setter, it must be done so that she does not perceive it, the evening being the proper time for this intromission, so that on the morrow the new comers may appear to be of the family. This single caution is also sufficient in substituting other eggs, and taking from the setter those on the point of being hatched.

"The *turkey-hen* takes and sets on the fresh eggs given her without the least difficulty; but it is proper not to give her more eggs than she can possibly set over and heat with the body."

A caution is here given, not to meddle with the eggs, whilst hatching, either to inspect or turn them—the setters never fail to do this, and all interference is injurious.

The turkey hen is employed not only to set on her own eggs, but can be advantageously used for the purpose of hatching either of duck, geese, or fowl eggs, and where many are required it has been found advantageous to keep many turkey hens for this special purpose.

"In those farms where a great quantity of poultry is wished to be reared, there is great advantage in keeping *turkey hens* on purpose to set, the more so, as, of all setters, they are the most patient and assiduous. When the brood of chicks is hatched, the young ones may be given to another mother, and a double number of fowls' eggs dexterously slipped under her, which, as they only take one and twenty days to hatch, do not fatigue the setter so much as would two broods of her own eggs, one after the other; besides the way to get early pullets is by giving up the brooding of them to the *turkey hen*, whose laying is sooner over than that of the common fowl, and to put her in a way of having the second lay."

It has been even attempted to turn to advantage the time when the turkey cock reposes, by making him set, as the capon does.

"The repeated experiments I have tried have fully proved to me, that when he had been constrained to it by every possible stratagem, he acquitted himself in such a manner as to deserve to be compared, for his assiduity in constantly remaining on the eggs, to the true setting mother. But when the young ones appear, their cries and motions scare him, and he either kills or abandons them.

We come now to the most important part of the whole of this article, which treats of *turkey-chickens*, and as it is our wish to make known the practice of the French districts, which, as far as we have any experience, is excellent and differs but little from that of those who are the most successful among us, we will extract all that we find here, without any remark of our own, leaving it to the judgment of our readers to apply the directions, and profit by the cautions here given.

"According to the assiduity of the setter, it is on the thirty-first or thirty-second day of setting, that *turkey chickens* issue from their prison; but as they are not born altogether, the housewife must put them successively in a wicker basket, filled with wool or feathers, which she must deposit in a warm place, and sheltered, especially in cold weather. When the brood is entirely come out, if the *turkey hen* is not immediately to make a second, the little ones are given back to her, care being taken to supply them all with meat and drink.

"In the number of chickens which compose the brood, there are some which, slow in hatching, seem to require a little help to get out. The egg

then must be taken up and attentively considered. If there appears a mark, or a small hole, through which the bill of the chicken can be seen, the shell must be broken very slightly on the outside, lifted up with the nail, or the point of a pin, so as to make the hole wide enough for the head to pass, taking care not to touch the animal, who would immediately die; he must be drawn gently out of the shell and blown upon to take off the slime that covers it. Eggs, nearly hatched, are also sometimes put in warm water before the birth of the chick. This custom softens the shell, and shows whether the little one is dead or alive.

“Those eggs which, on the third or fourth day of hatching, do not present at either of their extremities that clear point, or small hole, through which the chicken may be perceived, will produce none; they must be thrown out of the nest as soon as possible; as also the remains of shells, because they would spread a prejudicial infection, and might hurt the young ones.

“But if there are circumstances in which the animal requires help to get out, when he is kept back by some obstacle which he cannot conquer, without the help just pointed out, it must be administered with much circumspection, and the operation here alluded to must only be resorted to but when the chicken has already made an opening insufficient for the passage of the head; it is not less important to disencumber new born chickens from a pellicle with which the inside of the shell is lined, as also of that yellowish slime which covers the extremity of the upper bill; that matter is something like a grain of hempseed, and bears that name.

“If in the latter days of setting a thunder-storm should come on, it often happens that the little ones perish in the shell through weakness, or by suffocation; and if one succeeds so far as to extract some, they are commonly stifled under the mother. This accident must be remedied by putting the hatched eggs in a basket, filled with feathers, covered with a cloth, and laid pretty near the fire, in order to keep up a degree of heat near to that produced by setting. These simple means are not only liable to favour the birth of the chicken, they can equally bring to life the little ones which the cold or damp has seized, at a distance from their mother. We shall quote an instance at the end of this article.

“The instant the *turkey-chickens* are hatched, it is pretended that it is a custom in Sweden to plunge them in cold water, and to make them swallow a pepper-corn to strengthen them; that in other countries their legs are plunged in wine during eight days, and that they even take a few drops.

“These various customs may suit when the young ones are weak and drooping. In this case, the pepper-corn, as does also the drop of wine, reanimates and warms them, excites their appetite, and disposes them to take their first nourishment. But let us be allowed to observe, that it is by not leaving nature to act that she is oppressed, under a pretence of helping her. Our impatience does a good deal of mischief; we are then of opinion, that when the weather has been favourable for hatching, the eggs must not be touched; that the use of the cold bath and the pepper corn are perfectly useless. Wine alone is not to be neglected.

“It is well known, that birds on leaving their shells quit a warmth of twenty-five to thirty degrees, and that they often pass through a medium whose temperature is inferior by half; therefore, in the beginning of his existence, the new-born chick remains under the wings of his mother, where he finds the warmth nearly equal to that he had in the egg; by making him leave this shelter to handle him, to bathe, and make him swallow pepper, he passes too suddenly from heat to cold, from rest to exercise; and this sudden change, hurtful to animals grown up, becomes more especially so to the *turkey-chicken*, whose natural delicacy and want of feathers render him more sensible to these transitions.

“The food for chickens is first, bread crumbled and soaked in wine. It is given to them in the hollow of the hand, afterwards on a pallet; white cheese is mixed with it, or curdled milk with hard eggs, male nettle and parsley, chopped up and made into a paste, more moist than dry, laying it

out on small, broad, flat stones, three or four inches by two in width. The little ones are divided into flocks of a small number, they are hindered from tormenting one another; by these means their feet and plumage are prevented from sticking together, such inconvenience being as much against their health as the beauty of their coat.

"Although male nettle and parsley are the most wholesome plants for *turkey-chickens*, and are every where to be met with, bramble may be substituted to these when not to be got at. They are mixed with barley-meal, beans, maize, according to local resources. They are made into balls about the size of the fist, which the housewife holds out in her hand to the chickens. They then press and place themselves around her, and peck at this paste till they are full. The housewife's girl must be careful to give it to them several times a day, as often as they digest. Water is given them to drink in shallow vessels.

"An essential caution to secure to the chickens the paste, which the *turkey-hen* takes from them, and who during the setting eats but little, but comes to her first voracity as soon as she has little ones, is to put a hen-coop near her, raised about three or four inches from the ground, so that they may pass under to take their food, which is laid in such a manner, as that the mother cannot get at it by lengthening her neck; barley or oats are strewed around it for her, and her water is in a low vessel, for fear the chickens should drown themselves in it, or wet the upper part of their legs, which is very hurtful to them. When the chickens have been penetrated with the warmth of the sun during two hours, they must be turned in, and kept out longer the next day. They will thus be accustomed to the open air, till they become vigorous and can help themselves. If the place in which they are left at liberty with their mother be too extensive, she must be tied with a string to a post, the young ones go but little from her, and above all, a shed should be placed near her, made of boards, and supplied with straw, to shelter them from a sudden storm, or a hot drying wind. The scorching sun and the rain are, above all, hurtful to them, and it must be an indispensable care to shelter them from the one and the other, at least, during the first six weeks.

"As the chickens, at the moment of their birth, give no signs of seeking their food, and as they are not instructed in the least so to do by the mother, who seems to be more taken up with her own preservation, some impatient housewives have thought it best to feed them; but however clever a housewife's girl may be in this way, it is always hazardous, for the animal's bill is subject to be broken; it is in this instance that it appears necessary to admit two or three eggs of the common fowl to those of the *turkey-hen*, ten days after setting, so that the young ones may be hatched at the same time; as the common chickens peck and eat as soon as out of the shell, they become, for *turkey-chickens*, an example which they imitate, and which determines them to eat a few hours sooner, which is of some use.

"This dangerous practice of feeding them has, however, found some partizans, and Rozier among others. But he seems to have been led into an error, for Saint Genis, that enlightend husbandman, who always speaks from his own experience, very judiciously remarks, that one must not be in haste to make the *turkey-chickens* eat; that when they are taken from under their mother to be handled and fed, they perish sooner or later, on account of the difference of temperature through which they pass so suddenly; he suspects that these birds, more than any other, should be left to mere nature, and that these excessively delicate beings must not be taken from warmth and repose.

"It is a very plain fact with all domestic birds, that they do not come out of the shell all at once, and that often in the very same brood there is a distance between the first and the last born. Saint Genis has moreover observed, that hardly are they born when they keep under the mother, and shew no desire to take any food; he concluded from this, that animal warmth was without doubt infinitely more necessary to them than food. His experiments have led him to this opinion, to wit: that two or three

days pass over before going to seek their food, but that they afterwards peck very well, and absolutely stand in no need whatever of any foreign help.

"When the chickens have come to a middling size, and can leave the yard where they have been reared to go into the fields, meadows and woods, several broods may be gathered together under the conduct of a *turkey hen*, and so form but one and the same family; observing, however, that there be not a too great disproportion of age, nor in too great numbers, for if she perceived any large ones mixed with others a great deal smaller, she would peck at and kill them; besides, assembled in too great numbers, they could not be warmed and enlivened under her wings: now, animal heat is a fresh setting.

"High places, exposed to the aspect of the East and South, are those which always agree best with the chickens, especially when they have a small separate yard, which guards them from the attacks of the larger poultry, and other animals of the farm yard: from thence they might pass into some pasture-land, or uncultivated places, covered with wood and bushes, where they could find plenty of insects, and shelters against the wind, the rain, and the too intense heat of the sun.

"*Turkey-hens* are not only the most assiduous setters on all sorts of eggs, they are, moreover, preferable to any other female bird in the farm-yard, for leading the little ones of different families; they shew the same regard for them as for their own, no bird of prey or wild animal dare approach; the common chickens led by a *turkey hen* find food in greater abundance and fatten sooner; they leave their nurse-mother later than if she were a common fowl.

"The food which has been spoken of, is continued to be given to them till they can digest something more substantial; it is then a custom to let them go into the fields: after harvest-time, they find corn on the ground, which they pick up; they must then be made to drink more frequently, especially when the heat is great; and care taken when they stray from home, that they are not caught in storms or rain; they are so fond of the shade in summer, that they run eagerly to hide themselves in thickets, but they must be prevented from remaining there too long, for experience has often made it appear that they issue therefrom with sprained legs, get lame, and are stunted in growth.

"The weak state of the first stage of the chickens lasts, in general, for two months, or till the nipples which the neck and head are supplied with become of a dark or light red. That remarkable time in the natural history of this bird, is really a critical one for them; the dangers which surround them during their feeble youth, diminish, and they lose the name of chicken for that of *young turkey*.

"Nature, by colouring their nipples, seems to tell us that these birds are no longer in need of those unceasing cares which have not been spared towards them; and that to favour this eruption, the same cares must still be prolonged, the food increased and rendered more tonic, by adding the yolks of eggs, wine with crumbled bread, wheaten flour, bruised hempseed, &c.

"After the shooting of the red, which must be looked upon, as I have already observed, as the time of their being seasoned, the *young turkies* go into the fields with their mothers, who are not long before they are busied with a fresh laying, they mix without danger or difficulty with the *turkies* of the preceding years, if there happens to be any. They roost in the open air, on trees, or on the roost prepared for them; they may, till the month of October, be led into fallow fields, meadows, vineyards, after harvest-time, mowing-time, and the vintage; in the woods after the falling of the acorn and beach-nut; in short, in every place where there is wild fruit, insects and corn to be picked up; but they must, above all, be kept away from vineyards when the grapes are ripe, for hail cannot do more mischief; they return home to the farm in the evening, well stuffed with all the insects they have swallowed and rid the fields of, with the corn which has escaped

the hand of the gleaner, and a quantity of subsistence which would be absolutely lost to the proprietor

"A girl from twelve to fifteen years old, can easily manage a hundred *young turkies*, but she must be charged not to forget that not having attained their full growth, they would be fatigued by two distant rambles. No food makes their flesh whiter and more delicate than the residuum of melted tallow and kitchen-stuff, more or less must be boiled, according to the number that is to be fed; when this residuum is well divided, it is diluted in a boiling kettle, plants, and especially nettles chopped up, and pot-herbs are mixed with it. The whole being well boiled, barley-meal or maize is added, of which is made a sort of paste, which is given to the *young turkies* twice a day at least, in the morning and at one o'clock, when one wants them to get fat. But as the residuum of tallow is not every where to be procured, the dregs or refuse of the oil of nuts, linseed, or sweet almonds, is a succedaneum; but the greatest care must be taken not to fatten them with it, for their flesh would partake of it.

"Independent of the male nettle, parsley, every plant which is allowed to possess tonic and stomachical virtues, agrees particularly well with *turkies* of every age; fennel wild succory, mil-foil, may enter into the composition of their food. A scorching sun is fatal to these birds, as well as rain therefore, intelligent turkey keepers take care to lead their young flocks to pasture, only during the moderately warm hours in the day, the morning, when the dew is gone off, and the evening, before it comes on, namely, from eight o'clock till ten, and in the evening, from four to seven. It is proper that young *turkies* should find some shade in their walk, and on the least sign of rain haste should be made to turn them into their habitation, and to preserve them from the bad effects of cold damps."

Next follow directions for fattening turkies, but after enumerating many customs, and various articles employed for this purpose, he comes to the conclusion that they will fatten on any food, if given in sufficient abundance. Another section is devoted to the *enemies of the turkey*. We find here but little to note, except that an immoderate use of lettuce is injurious, as it loosens their bodies, which *always proves fatal*. Rain is one of their greatest enemies, and if the young chickens are caught in it, they must be carefully wiped, one after the other, and our author advises, "that *hot wine* be streamed over their backs." The next section is almost as important as the one on rearing the chickens, it is on the diseases of the turkey, which we also extract in full.

"It has been said, but upon no foundation, that the constitutions of *turkies* differed not in the least from the common fowl; that their diseases were of the same kind, and that the same remedies should be applied for their cure. There can be no doubt, that when they are looked after in a suitable manner, sufficiently fed, and lodged in wholesome and airy habitations, these birds can be preserved from many accidents to which they are subject. It must not, however, be concealed, that although of the family of the fowl, that they are exposed to peculiar affections.

"In the first instance, the *turkey-chickens* are infinitely more difficult to be reared than young fowls; and before they come to that age when they can dispense with mother's care, they cannot escape a turn which to them is a critical moment; this is what is termed the *shooting of the red*. Their sanguine constitution exposes them equally to accidents unknown to the common fowl. In fact, when their nipples swell and look red, if the weather is changeable, many of them fall victims; but none perish when the season is favourable, and care has been taken to strengthen them with the

crumbs of bread soaked in wine, or a paste mixed up with pepper, fennel, parsley, or hemp-seed. It might again be possible, by means of letting blood in the axillar vein, under the right or left wing, to succeed in saving them.

"In their younger days it is remarked, that they are subject to a disease, which shews itself by very strong symptoms of weakness: they soon perish if care is not bestowed on them. The tips of the feathers of the wings and tail of black *turkies* become white; the plumage bristles up all over the body; they have a languishing aspect, and housewives then call them *heated turkies*, on examining attentively the feathers on the rump, two or three will be found whose quill part is filled with blood. The extraction of these soon restores the animal to health and strength. They are sometimes costive, at other times, on the contrary, they have a looseness; to these two opposite diseases only a single remedy is applied, that of warming them.

"When the chicks are ill, they look dull and hang their wings; they must be taken from the female and put near the fire, and their feet wrapt up in a little hemp, lest they peck at them; they are made to swallow some pepper-corns, food is laid before them several times in the day, and they are not to be returned to their mother before they are quite strong again.

"At a more advanced age, a swelling takes place on their head, which is cured by facilitating the discharge at the nostrils, and by rubbing them with fresh butter; sometimes the blood is impelled towards the head, which is covered with pimples; these must be fomented with a decoction, of which vinegar is the basis; onions and pepper must be added, and they must be made to eat hemp-seed, to favour the discharge: they sometimes die of this disease. To avoid the total loss of the animal, the head is cut off, and the rest is good to eat.

"When arrived at the maximum of their growth, *turkies* are exposed to another disease, infinitely more dangerous; several economists have compared it to the rot in sheep, while others have not doubted but that it was the small pox; but well skilled observers have remarked, that it had not absolutely any of the distinctive characters belonging to these two contagious eruptions, only for these birds; for it is false that it is so for sheep; and *vice versa*.

"This disease shows itself by pustules, which come out either on the surrounding part, or inside the bill, and as far as the throat, or on those parts the most destitute of feathers, such as the internal parts of the wings and thighs, or on the nipples; it is commonly mortal; therefore farmers are in the habit of killing their *turkies*, when they have ascertained that they have got it; there exist, however, means to cure it.

"The first step to be taken in this case is, the moment that this disease is perceived to be among the *turkies*, to separate them from those that are sound, both to prevent them from catching it, and to favour the administration of diet, or the application of the remedy, or to burn these pustules with a hot iron; and if they are on the inside, they are bathed with vinegar, in which a small quantity of vitriol has been put: in short, wine must be given them both as a tonic and cordial.

"Here is a fact, which proves that it is possible to bring to life those young *turkies* whom cold has seized at a distance from their mother. A chick, about five or six days old, was found in the morning, laying on the ground in the coop, bereft of feeling and heat; the turkey-keeper threw him on the dunghill in the poultry-yard where it became the prey of the poultry: some children got hold of it, and were disputing who should have it; and it had already passed through several hands, before he was able to seize it; he laid it on a bed of warm ashes, covered over with a cloth; and hardly had it remained three minutes in this position, when it gave some signs of life; he then made it swallow a drop of hot wine, and he laid it in a basket filled with feathers, in which he took care to keep up the prescribed degree of warmth: at the end of four or five hours the bird began to eat, and on the third day he was enabled to follow the flock, and

became the finest of one hundred and twenty *turkies*. This cure has saved the lives of many young *turkies*, whose accidents of the like nature, and frequent storms, had reduced to the last gasp."

We have had occasion to try this last remedy, and have found it to succeed in more instances than one, and many young *turkies* which are now annually lost, from being chilled, might be saved by a little attention, having them brought in, warmed, and a little wine given—this treatment, as we before remarked, has saved us many. One other section is devoted to the *economical uses of the turkey*, but as this is pretty well understood by us, we pass it by, and conclude by extracting a passage taken from a Swedish book, entitled *Rural Economy*.

"Many of our ingenious housewives," says this ingenious author, "have long despaired of success in rearing *turkies*, and complained that the profit rarely indemnifies them for their trouble and loss of time; whereas" continues he, "little more is to be done than plunge the chick into a vessel of cold water, the very hour, if possible, but at least the very day it is hatched, forcing it to swallow one whole pepper-corn, after which let it be returned to its mother; from that time it will become hardy, and fear the cold no more than a hen's chick. But it must be remembered, that this useful species of fowls are also subject to one particular disorder, while they are young, which often carries them off in a few days. When they begin to droop, examine carefully the feathers on their rump, and you will find two or three whose quill-part is filled with blood; upon drawing these, the chick recovers, and after that requires no other care than is commonly bestowed on poultry that range the farm yard. The truth of this assertion is too well known to be denied; and as a convincing proof of the success, it will be sufficient to mention, that three parishes in Sweden have, for many years, used this method, and gained several hundred pounds by rearing and selling *turkies*."

SELECTIONS.

ART. I.—*From the Western Agriculturist, a work which is now in press, and will shortly be published; by ROBINSON & FAIRBANK, of Cincinnati, Ohio.*

[FROM THE WESTERN TILLER.]

Fences.

We proceed now to treat of one of the most interesting and important subjects, particularly in this western country, connected with the tillage of the earth, to wit: the construction of *fences* to protect the crops of the farmer from the depredations of his own stock within, and that of his neighbours from without. There is no part of the labours of the agriculturist more expen-

sive or perplexing than that of keeping up his fences. It acts as a constant and ruinous drain upon his purse, as well as a ceaseless annoyance to the serenity of his mind. One of the most scientific farmers of this county thus writes to us upon this subject, and we doubt not that he expresses the prevailing sentiment of the agricultural community.

“ Without the fear of contradiction from our experienced farmers, I pronounce this to be the leak which prevents the filling up of our cup of bliss ; as things are managed in the western country, it is worse than a leak, it is a sore, a blotch, the source of perpetual discontent—the ‘fretting leprosy’ of the land. Tell us how this is to be cured, and your book shall be immortal—*‘Semper honos, nomenque tuum laudesque manebent.’* I have said in the *western country*, for in no other part of the world has the farmer so much labour to undergo in order to secure his crops. The mode of enclosing, as here practised, and the urgent necessity there is for the strongest fortifications, in consequence of the barbarous practice of suffering stock of all kinds to run at large, keeps the farmer poor and grovelling and ignorant,—creates the cause of more rustic quarrels than any other thing, whiskey not excepted. I had rather live in southern Africa and see my crops eat up and trampled down by the countless droves of antelopes, which occasionally overrun that country, or even guard my *field of cucumbers* from the foxes and jackalls of Syria, than be a farmer in western America, to endure the misery of our present system of enclosure, provided there was no hope of relief.”

We wish it were possible to gain *immortality* for our book, on the condition pointed out by our correspondent. But of this we despair. Availing ourselves of his useful suggestions upon the subject, we may, perhaps, offer some views, and lay down a few instructions, that will have a tendency to lessen, if not eradicate this ‘fretting leprosy’ of the land.

In the first place, let a law be passed, with severe penalties, against the running at large of stock of every description. Why this matter has not long since been regulated by legislative enactment, is a matter of surprise. A more ruinous practice to the peace of the farmer and the safety of his crops, could not be devised, than that of turning into the highways and unenclosed woodlands, troops of unruly horses and cattle, and droves of half starved hogs, against whose unlawful assaults no ordinary barriers are proof. Until this is done, it is in vain to look for exemption from this crying evil. A better system of fencing than that which at present prevails, may, in some degree, lessen the evil, but so long as the hogs, cattle and horses, are turned into the woods and roads to seek a scanty and precarious subsistence, the farmer may look in vain for security to his crops, or quietude among his neighbours. His worm, and post-and-rail fences may

be annually renewed—his hedges of thorn and honey locust carefully planted and trimmed, but all to little purpose; nothing short of a stone wall, both high and thick, will resist the encroachments of a troop of half famished, full grown hogs, turned out to “root or die.” No time should be lost in bringing this matter before the legislature. It is a proper subject for statutory provision, and the evil complained of, can only be remedied in that way. The press, and the agricultural societies of the state, should take up the subject; petitions from the farmers of each county should be circulated and forwarded to the legislature, and their representatives instructed to procure the passage of a law inflicting the heaviest penalties upon all persons who suffer their stock to run at large. Until steps of this kind are taken, the farmer’s cup of bliss will never be filled.

We are not to be understood as saying, that a law, prohibiting the running at large of stock, would do away with the necessity of good fences; on the contrary, they are indispensable to protect the crops of the farmer from his own animals. That there is, throughout the western country, very great mismanagement in regard to this branch of husbandry, is most obvious. If dead fences of timber are used, they are but too often imperfectly constructed of bad materials; if stone walls are built, they soon fall down, and if hedges are occasionally adopted, they are generally so much neglected, that they are neither ornamental nor impenetrable.

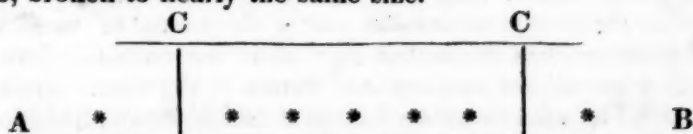
There are several different kinds of enclosures; the hedge, the ditch, the wall, and the paling, worm, or post-and-rail fence. Ditches are sometimes used for a fence, and are then made deep and wide, and the earth removed from them, thrown up into a bank on the side, the height of which, added to the depth of the ditch, constitutes a very tolerable barrier. Ditches vary in their form; those with sloping sides are the best and cheapest. The slope should be considerable, so as to make the ditch about three times as wide at the top as it is at the bottom. The prevailing fences of the west are the “worm” and “post-and-rail,” both of which are temporary barriers, expensive in construction, and requiring continual repairs. The progressive diminution of the timber used in the construction of these fences, to say nothing of their insecurity, and their annual calls upon the time and labours of the husbandman, will cause them, at no distant day, to be wholly abandoned. The earlier a substitute is found for them the better, for as has been properly remarked, of “whatever wood they are made, however substantially they may be executed, or in whatever situation they may be placed, their decay commences the instant they are erected.”

Of the relative value of the different kinds of timber used in the formation of fences, nothing need be said: sad experience in the frequent renewal of his fences has long since imparted

this knowledge to the farmer of the west. The practice of burning or charring those parts of the posts, used in making fences, which are sunk in the ground, although somewhat extensively practised, is believed to be without any beneficial influence in preserving them from decay. A better mode is that of giving them a coat of boiled oil, or of oil paint, which will exclude both the air and the moisture. Another good preventive of decay, is that of immersing the posts, for a time, in hot pyroligneous acid. But before they are subjected to these processes, the post should be well seasoned; for if the wood be green, or have been exposed to moisture, previous to their being dipt in these preparations, the coating will not adhere with that tenacity which will exclude from the pores of the wood, the wet and dampness of the ground.

Wall fences are formed of various kinds of materials, such as earth, stone, brick, &c. When properly constructed, they are good fences. Those formed of earth are not considered durable, the brick are too expensive, except for ornamental work. In cases where the material is found on the grounds that are to be enclosed, a dry stone wall is not only more durable, but taking a series of years, cheaper than either clay or brick. In the construction of walls of this kind, it is important that the stones be of that size, and so broken, as to bind well; and they be well put up, pinned with care, and have a dry and deep foundation, to protect them from the effects of the frost. They should be wide at the bottom, tapering upwards; and securely coped at top with a material so substantial, that it cannot be readily overturned; for on the manner in which the wall is finished, will greatly depend its durability.

In Scotland, wall fences of this kind are built in the following manner. The foundation is dug two and a half feet wide, and six inches deep, and filled to the surface of the ground with small stone, broken to nearly the same size.



Stones are then placed on the edge of the foundation that will reach beyond it six or seven inches, and at the same time, cover the foundation of small stones, seven or eight inches; the wall is then started upon the horizontal line A B, on the accompanying diagram, and is well hearted as it ascends. At the height of eighteen inches, a binder is put on, C C, that reaches from one side to the other. These binders are one yard apart, the whole length of the wall: 18 inches higher, another binder is put on, reaching from side to side. These are also one yard apart, but are not placed over the last course of binders, but in the centres between them. The wall, when raised to the proper height, is capped with stones reaching across it, which at the top, should not be less than one foot in thickness.

A fence, built in this manner, will, in ordinary cases, stand for forty years, without needing repair. Where the stone, necessary for the erection of a fence, lie upon the ground that is to be enclosed, or can be obtained without hauling them more than three or four hundred yards, the cost will be found but little more than that of a "worm fence." Taking a series of ten years, and the advantage is altogether in favour of the stone fence. In the course of forty years, it will be found, that four or five renewals of the rail fence have been necessary, and not one of that constructed with stone. It is obvious then, that as between stone and wooden fences, the advantage, under certain circumstances, is wholly in favour of the former. It is safe to say, that at least one month of the annual labour upon the farms in the western country is expended in making and repairing the worm fences, with which they are enclosed and subdivided. Suppose, for example, two farms, of five hundred acres each, in all respects equal, save that one is fenced with stone, and the other with dead timber, and that each farm employs twelve labourers, at one hundred dollars per annum. The farmer who has fenced his ground with stone, incurs no expense, while he who has used timber, is compelled to make an expenditure of one hundred dollars per annum, being the entire labour of one hand each year. At an annual compound interest, these expenditures would amount, in less than thirty-three years, to ten thousand dollars, the entire price of the farm at twenty dollars per acre.

Of the superior value of stone fences, as compared with wooden ones made of dead timber, there can be no doubt, provided the stone for constructing them can be found contiguous to the ground to be enclosed. When made, they are at once a barrier, and allow the immediate use of the enclosures. They occupy but little space, are more secure than most other fences, admit of being usefully employed in rearing certain kinds of vines and other fruits, and taking but a very short term of years into the calculation, are unquestionably more economical than the prevailing worm and post-and-rail fences of the west. How far they should be used to the exclusion of live fences or hedges, remains to be seen in the examination which we are now about to give to this species of fencing.

In *England*, by far the most common kind of fences is the live hedge, and except in certain situations and under certain circumstances, they are found, after long experience and repeated experiments, to combine more advantages than any class of enclosures. Live hedges are made from a great variety of plants. Success in rearing them will be found to depend upon the degree of attention that is bestowed on the following circumstances:—First, the plants being suited to the soil and climate; secondly, the preparation of the earth or soil; thirdly, the time and mode of planting; fourthly, the age of the plants; fifthly, the size of

them ; sixthly, the dressing or pruning the tops or roots before planting ; seventhly, the weeding and hoeing them while growing ; eighthly, trimming and after management ; ninthly, filling up the gaps or openings in the hedges ; and tenthly, diseases to which hedge plants are liable, and their remedies.

It will be obvious to the mind of every reflecting man, that in the choice of plants for a hedge, the influence of soil and climate should be particularly considered, as upon these, more than any thing else, will depend the success of effort. Hence, the policy, as a general rule, of relying more upon our indigenous plants, than upon those of other countries. Where indigenous plants for hedging cannot be had, it will be necessary to rely upon exotics, and in the selection of these, it will be found important to bring them from points where the climate and soil correspond as nearly as possible with those of the district into which they are to be removed. Indeed, too much attention cannot be bestowed upon this subject. A British writer says, "in respect to this, a careful inquiry seems to be one of those requisites, essential to the success of every plan of enclosure ; for though there are, comparatively speaking, few situations, however elevated above the level of the ocean, and scarce any description of soil, where a good live fence may not be reared, with one sort of a plant or another, yet it is an object of the first importance to know the plants best suited to every variety of soil, as by a judicious choice of these, much loss and difficulty is avoided, and good substantial fences are made in a short time, and in many situations, where, from a mistake as to plants employed, the fence has languished for years, and ultimately perished, notwithstanding every care that could be bestowed upon it. In some instances, we have known twenty years experience barely sufficient to undeceive those who had made mistakes of this kind."

The preparation of the ground intended to receive the plants, must be carefully attended to. The ground in which a hedge is to be reared, will be improved by a summer fallow, to destroy the weeds. Dung, lime or compost, according to the nature of the soil, should then be laid on the tract upon which the hedge is to be planted. When the manure is properly incorporated with the soil, the plants should be carefully placed in the earth, and it drawn up and trod firmly about their roots.

Some diversity of opinion exists as to the best period for removing the plants from the nursery to the place where they are to stand in the hedge. In England, the usual period is from the beginning of November to the end of January, and sometimes in the spring. In this country, where the changes in the winter season from heat to cold, are both frequent and extreme, we think it will be found much the safest plan, to remove the plants very early in the spring, and for this obvious reason, that the frequent freezings and thawings of the winter season, are apt

to loosen the ground around their roots, and thus either destroy, or materially retard their growth.

The modes of planting hedges are various. When they are made in the face of a ditch, bank or wall, the practice is to lay the plants horizontally, either upon the surface, or upon a paring of a sod, and afterwards to cover them in such a manner as that about eight inches of their length may be under the soil, and about three inches projecting above it. This affords room for the roots to stretch out and form fixtures for the plant, while the part above the ground will be able to produce but two or three shoots, which from the smallness of the number, will be strong and vigorous. In setting a hedge upon the common surface of the ground, a furrow, eight or ten inches deep, is made with a plough, upon a tract that has been previously manured. To render the furrow as clean as possible, the plough should be drawn twice along it. The plants should then be set in the bottom of the furrow, inclining a few degrees in the direction that the fence is to run. The plants are placed against the perpendicular side of the furrow at a distance of from four to six or even eight inches, and covered with the earth from the other side. The earth on each side of the hedge should be trod or closely compressed to the roots of the plants: the soil is then pointed with the spade on each side, which closes the operation.

The usual practice is to remove plants from the nursery to the field when between one and three years old. Plants, however, of this age, are, for some time, in a state of infancy, and require great protection. It is maintained that the removal should not take place until they are at least three years old, and that if they have attained the age of four, five and even six, it is still better. The idea that plants of this age will not thrive well, if transplanted, appears to be unfounded, as experiments have shown that if properly removed, they will grow rapidly, and make good fences in one half the time that will be required by young plants. In removing plants, however, that are four or five years old, great caution is necessary to preserve the roots as entire as possible. In planting them, it is necessary that they should be assorted, so that those of the same size may be brought together. This will be attended with many advantages: plants of a similar size and strength, when planted together, keep pace with each other: the growth of the whole is uniform, and the hedge becomes a substantial fence of equal height throughout, and free of gaps, the reverse of which will be the case, if this separation be not made. And where hedges have been neglected in these particulars, in their commencement, no care or industry afterwards will render them useful or ornamental.

The dressing and pruning of plants preparatory to the planting of them, is the most important part of the whole operation. The practice of cutting off nearly all the roots, and suffering

them to lie for days and weeks unprotected and exposed to the weather, cannot be too much condemned. The consequence is, that many of them are destroyed, and all seriously checked in their growth. "Men of observation know that in every instance where either trees or herbaceous plants are to be transplanted, the more carefully they are taken out of the ground, the more numerous and entire their roots, and the sooner they are put into the earth again, the less check will they receive, and the quicker and stronger will they afterwards grow." When it can be avoided, the hedge plants should not be lifted from the nursery-ground till the very day on which they are to be replanted; and instead of the severe pruning and dressing, which they too frequently receive, care should be taken to preserve every root and fibre, applying the knife solely to curtailing the tops. When these precautions are observed and the plants are removed at the proper season into well prepared grounds, they will sustain little or no check in their growth.

The labours of the husbandman, in rearing up substantial hedges do not close, however, with the transfer of the plants from the nursery to the fields. Much of their usefulness and beauty will depend upon the care that is bestowed upon them after this operation has been performed. Good weeding, loosening, and placing around the roots new earth for the first three or four years, are of indispensable importance. If the weeds are annuals, an occasional hoeing will be sufficient to keep them down; but if they are root-weeds, that is, perennial or biennial plants, the roots themselves must be eradicated, or they will materially injure the hedge. The first weeding that is given to a hedge should be early in the spring, which will prevent much further trouble for the season, and at the same time exert a beneficial influence, by loosening the soil at the very time when the roots of the hedge-plants are beginning to spread. In loosening the soil around the roots, of either a young or and old hedge, it is well to lay up a few inches of soil to the roots; for if this be done occasionally, it causes the plants to throw out branches near the bottom, which prevent them from growing up thin and open, a common fault in those hedges with which good care is not taken. When a hedge is planted on the face of a ditch, bank or mound, with a projecting space before it of sufficient breadth, a supply of new earth may be laid up to the roots every two or three years. Where hedges are planted on level surfaces, this throwing up of dirt to the roots may be easily accomplished, and it should be attended to at each cleaning.

(To be continued.)

ART. II.—Cultivation of Sea-Kail.

[FROM THE LONDON QUARTERLY JOURNAL]

The *Crambe maritima*, or sea-kail, is an indigeneous plant of this and other countries of Europe, and found on the sandy beach of the sea coast. It has long been introduced into our gardens, as a culinary vegetable, but it is only within the last thirty years, that it has been brought into general use, and subjected to a mode of cultivation, very different from that which was first bestowed upon it. The principal value of this plant is its property of early growth; appearing at the table at a time when few such things can be had. It precedes asparagus, for which it is no bad substitute; and, as it makes a dish of itself, it gives a variety to the delicacies of the table; and if the opinions given of its medicinal virtues be correct, it is well worth cultivation; and the notice we are about to take of it, is describing an easy method of having it in great perfection throughout the winter months, and up to the time it may be gathered from the natural ground.

Prepare one or more beds [with alleys two feet wide between] for the reception of the seeds, in the following manner:—mark out the bed or beds two and a half feet wide, and of any required length, as near as can be from east to west; line off the sides and ends, driving a stake at each corner to ascertain the boundary; dig out the earth of the bed one spade deep, removing it to some distance: fill this excavation with the purest and finest sand which can be procured in the neighbourhood, either from the sea shore, the bed of a river, or from a pit. It signifies nothing of what color it is, so it be pure, and as free from loam as it can be had; for in proportion as the soil of the bed is poor or rich, so will the flavour of the plant be when dressed. When this precaution is not taken, and when the plants are suffered to enjoy the rich and cultivated soil of a kitchen garden, or the situation made so, by rich dressings or coverings of fresh manure, the plants are stimulated into an unnatural luxuriance, which deteriorates the flavour, imparting to them that strong disagreeable scent and taste, resembling common cabbage, than which nothing can be a greater drawback on the value of the vegetable; but when grown entirely in pure sand, the flavour is mild and pleasant, and is relished by most palates.

When the bed is filled with sand, and raised therewith about six inches above the level of the ground, [and this should be done previous to the end of March, which is the sowing season,] draw a drill along the middle, from end to end, about three inches deep, in which drop the seeds pretty thickly, as they can be thinned out to the proper distance after they come up. If the sand or weather be dry at the time of sowing, give a little water in the drill and immediately cover up. If the seed be good, the plants will soon appear, and when they are advanced to a size large enough to enable the gardener to choose the most promising, let them be thinned out to the distance of six or seven

inches, the distance at which they may remain. During the summer the bed should be occasionally watered with *dung-water*; and this, for the purpose of encouraging the growth of the plants on their first setting off; and as manure given in this shape is more fugitive than when applied in a more solid or concentrated form, it cannot impart rankness to the plants when they arrive at that age fit to be brought to the table. The plants cannot be forced, nor should any of their shoots be cut the first winter after sowing; but should be suffered and assisted to establish themselves, and gain sufficient strength to yield adequate crops the succeeding years.

About the month of November, in the second winter after sowing, a part of one end of the bed should be prepared for forcing. For this purpose, and in order that it should be done with facility and effect, a rough wooden frame should be made eighteen inches high behind, and one foot high in front, shaped like a common hot-bed frame, and of any convenient and portable length; and in width the same as the bed. Wooden covers should be fixed with hinges to the back; these may be raised at any time, for the admission of light and air and in fine weather may be thrown entirely back. When the frames are placed, dig out the alleys one foot deep to receive linings of dung, which may be banked up against the back and front of the frame. The surface of the bed within the frame must be covered with soft, short straw, or hay, nine inches thick, to arrest the heat which arises from the linings, and form that warm humid region into which the shoots will advance. The temperature of these dark frames must be regulated by due attendance. In very cold, or frosty weather, the frames at night will require a covering of mats or litter.

The required supply of the family—the time for it, and the length and number of the frames, must be judged of by the gardener, and who will act accordingly; but two frames are indispensable; because the second should be considerably advanced by the time the crop in the first is all cut. Young plants may be transplanted; and if they are to be had, they may be tried; but the safer way is to sow and plant both, to prevent disappointment; and in order that the roots be not too much exhausted by forcing, one bed should be forced in one year, and another the next.

The crowns of the roots have a tendency to rise—and as annual additions of sand will be required after the autumnal dressing, the beds by these additions become unsightly; but cutting off the most aspiring, with its flowering stem, every summer, will keep the whole within bounds. Instead of covering with dung or litter, to protect from winter frosts, the frames may be set on those parts intended to be forced, to answer that purpose. The uncovered parts of the beds may receive a coat of mould out of the alleys, to be taken off the sand in the spring.

The writer of this article, began to force sea-kail as long ago as 1798, using hot dung within as well as without, a frame with

glazed lights ;—but soon found, that neither the glass nor dung *inside* was necessary or suitable. He afterwards succeeded by the above plan, to produce the finest crops of this vegetable, at any time in the winter, and can confidently recommend such management, especially to those who have no hot house or hot bed frames : because, when there is an early forcing house, or frames, if old roots are properly selected and potted in the autumn, and placed in such houses or frames, where there is sufficient heat, and well shut up from light by putting empty pots over them, a crop may be had in this way, without the trouble and expense of out-door forcing.

ART. III.—*The Peach Tree.*

From a desire to encourage the culture of Peach Trees, we offer the following as the result of experiments and observation.

It is generally known that *worms*, near the surface of the earth, destroy them by eating the bark ; the object is therefore to find a preventative, in order that the trees may become aged in a healthy state.

It is evident that these worms pass through the common change, and assume the form of *millers*, early in the summer, and deposite their eggs in the bark as low as they can find access to it, and that the worms proceeding from them, begin to operate in the latter part of the summer ; when they have been found the size of a common pin. If suffered to remain they grow to the thickness of a rye straw ; each of them girdles the tree about an inch, and the wood from the wound to the heart, dies. Hence it is, that a single wound impairs the vigour of the tree, and a number of them kill it. The point to be gained, is to protect the tree from the millers, and by a simple method we have succeeded for several years, which is recommended with full confidence.

About the first of May, remove the earth from the body of the tree, and skirt it to the height of 15 or 16 inches, *in such manner as to exclude the millers*, burying the lower part of it in the earth. We have used straw cut to the length and about half an inch in thickness, bound on with twine. This should be removed about the first of September, as we have sometimes found the young worms in the upper part of the straw, being then readily discovered on the surface of the bark, covered by a little gum. The process should be commenced when the tree is young—they have been found in a rapid growth the first fall after it sprouted. Thus a few minutes in a year devoted to a tree, will probably protect it against this cause of decay ; a very trifling expense compared with the value of this healthy and delicious fruit.

JONATHAN BRACE.

JOHN I. WELLS.

WM. H. IMLAY.

Hartford, Con. Sept. 8, 1830.

PART III.

MISCELLANEOUS INTELLIGENCE.

Agricultural Query.—Mr. Editor—Permit a subscriber to inquire through the *Southern Agriculturist*, of some practical farmer (who can speak from experience) of the most profitable way of using well rotted cow-pen manure which has been laying in heaps a whole winter for cotton land. Shall it be placed in holes as we manure corn, or be scattered over the list, or over the beds before they are listed, by which means when they are listed, it will be more equally mixed with the mass of earth forming the bed?

To combine economy with the profitable use of it is desired.

A COTTON PLANTER.

Horses.—A writer who states that he has had the experience of *fifty years* in treating the diseases of this noble animal, gives the following directions to be observed in the care of horses:

“A great number of fine horses are destroyed in this country by those that have them placed under their care. It is a custom to wash horses with cold water, sometimes after hard driving, in the hottest time of the year, by which practice I have known many of them take the lockjaw and die; others have been foundered by only washing their legs and feet; it stops all perspiration and produces violent fevers. No gentleman in England will permit his horses to be washed—the horse is not a water animal, he wants the particular fostering hand of care, when placed in a domestic state.

Another bad practice prevails—the grain is thrown into the manger without sifting, and sand or gravel being heavier than the grain, it will settle down on the stomach of the horse. A few years past, I brought a stone from a horse which was believed to have been formed by thus feeding. I placed the stone in Peale's Museum; it is as large as a goose's egg, and cased round like a cocoanut shell.

“I would suggest a better plan for building stables, than that in use at present. All stables should be well ventilated, so as to admit a constant circulation of fresh air, without which horses are continually breathing on their lungs foul putrid matter. No stall should be less than five feet wide, as the horse, like man, wants to stretch himself when lying down to rest; many horses have died in the night, by being confined in narrow stalls, and being tied with a rope round their necks. All horses should have head stall halters, with a rein on each side, that should run up and down with blocks, in pulleys, on each side of the stall. The mangers should draw in and out like a drawer in a bureau, or desk; by being thus fixed as I have described, the horse will rise with ease, but on the old plan, the horse, in struggling to rise, often get his head under the manger, and is found dead in the morning. The hay-racks should be placed in front of the stalls, and not on the inside.

American Farmer.

Milk Pans.—A writer in Poulson's Daily Advertiser, has the following remarks on the properties of Milk Pans :

"The pans used in this country are made either of tinned iron, glazed earthen or stone ware. Tin is perhaps less objectionable than any other species of metal, at least of all such as can be applied to this use; but no metallic vessel whatever should be allowed to enter the walls of a well regulated dairy. A tin pan becomes a galvanic apparatus the moment an acidulated fluid is poured into it; besides which, if the seams are closed with solder, a poison is soon generated by the acid of the milk, and if closed by lapping, the cut edge exposes the iron to the same influence. Tinned vessels soon communicate a disagreeable taste, and even smell to water—distilled water! how unfit then for preserving such a fluid as milk.

"The earthenware pans are generally glazed with lead, which renders tin vessels, (improper and dirty as they are and must be) very preferable indeed. Here then we have a direct mineral poison (which, in the very smallest quantities, produces sickness) lining the the whole of that surface which is in immediate contact with the milk. I would as soon drink vinegar that had been boiled in a copper saucepan, as to use butter or cream that has remained twelve hours in a glazed earthen vessel.

"To the stone ware, I can see no possible objection; on the contrary, I am thoroughly convinced from theory, that it alone, is the proper material for milk pans. Consider it as you will, its superior fitness for this purpose is evident. The most highly concentrated acids have no effect upon it; the chemists daily avail themselves of this capital substitute for glass, of which the faces are composed, an absolute vitrification taking place during their baking by means of salt. Stone ware milk pans then are the proper ones, and I shall hereafter conclusively demonstrate that stone ware or glass is the only proper material for such vessels as are intended to preserve butter and a variety of objects wholesome in themselves, but rendered deleterious by being prepared or being allowed to remain in improper vessels.—*Ib*

Bees.—The attention of the public has been of late often called to the culture of bees. My own experience and what I believe to be important improvements in their management and in the construction of their hives, have been such as to enable me to make statements which have gained some regard from intelligent keepers of apiaries, which may deserve still more than they have received. I have practised the making of hives 14 inches square by 7 deep; the top perforated by three round holes in an inch diameter, which are to be placed over each other in order to remove the top hive without disturbing or destroying the bees.

The present year I had swarms from six hives. One came out on the 5th of June; I put it into a hive over which I placed another; and at the same time put an empty hive upon that from which the swarm had issued. On the 31st of July, I took off my top hives: that from the before mentioned swarm contained *thirty one* pounds of good honey, and that which had been put upon the old hive *twenty-two* pounds; making *fifty-three* pounds of pure honey, and my six hives yielded *one hundred and eighty-nine* pounds.

I added an empty hive to each, leaving a sufficient quantity of honey in them severally for the winter, and still, without impairing their winter supply. When these top hives are removed this fall, they will be found to contain much honey.

EBENEZER WITHERINGTON.

Dorchester, December 14, 1830.—*Ibid*.

Grapes.—It is told us as a fact worth recording, that *one hundred thousand* pounds of grapes, are annually raised, in the neighbourhood of Boston. We know many grape vines in the city that bear abundantly. Mr. Perrin May devotes much time to their cultivation, and his garden, this year, has been very prolific in this delicious fruit.—*Boston Transcript*.

Grapes.—Mr. Lemuel Sawyer, of N. C. in a letter to the American Farmer, describes the Roanoke or Scupernong grape, which is indigenous in North-Carolina, and one vine of which is sufficient for one man and his family, for it will spread as long as he will give it bearers, and yield 60 bushels! It grows on sandy land which is fit for nothing else, makes a rich and oily though sweetish wine, some of which Mr. Sawyer now has 16 years old. It makes excellent champaign, but so powerful that few bottles can hold it.

It is really surprising that more is not done in Massachusetts to cultivate our native grapes, and foreign ones also. It is a fact that vines bending with clusters of beautiful and delicious grapes, are constantly seen in Europe on dry, sandy, and pine land, where a yankee farmer would not think he could raise sorrel! And what is more in the depth of summer, when there is little rain in all the South of Europe, those vineyards are alone green, flourishing and refreshing. The reason is that grape vines strike their roots deep, and draw up moisture when no other plant can.—*Mass. Jour.*

Short Directions for Transplanting Trees.—Food is as necessary to the health and growth of plants, as it is to animals. The best food for plants is rich, pulverized earth, or rather the vegetable matter which it contains. That your trees and shrubs may live and thrive, proceed as follows: dig for your trees holes at least three feet in diameter, and eighteen inches deep, and for shrubs a proportionate size and depth throwing away the lower spit of earth. Then fill up the whole to a proper height for setting the tree, with rich surface earth, or perfectly rotted manure, blended with four out of five parts of earth. Set your tree and cover with surface soil, treading down when the roots are covered with earth. See that the roots are trimmed of all bruised and broken parts; that they are separately extended in their natural direction; that fine earth every where comes in contact with them. A potato or two, or a gill of flax seed or oats, may be advantageously placed in the hole before the tree is set, and a pail of water turned in after the hole is two-thirds filled. The rich earth affords nutritive pasture for the young roots to range in: the potatoes, &c. keep the ground loose and moist, and enable them to roam freely; and the water brings the earth in contact with the roots, and prevents them from becoming mouldy. Keep the ground free of grass as far as the roots extended; for these exhaust the moisture and nutriment necessary to the plant, and exclude from the roots air and heat, the indispensable agents to vigorous growth. Treat your trees as you would favourite corn hills, which you wish to make the most of, except give them no unrotted dung. Washing with a strong ley in May will destroy insects, and promote the health and vigour of the trees. To persons living remote or who are unable to obtain their trees for early spring planting, we recommend that they procure them in the autumn and lay them in by the heel, as nursery men technically term it; which is merely to dig a trench on a dry piece of ground, laying the earth on one side—the trench wide enough to contain the roots; put the roots into this, close together, letting the stocks rest in an inclined position upon the bank of earth and then cover the roots and a part of the stocks with earth. In this way they escape injury from the frost of winter, and are in readiness for early planting in the spring. Besides, better plants are generally obtained in the autumn than in the spring, after nurseries have been culled.—*N. E. Farmer.*

Large Potatoe.—We have before us a sweet potatoe of the yam kind, which measures twenty and a half inches in circumference, and eighteen and a half in length, and weighs nine pounds and a quarter. It was raised on the plantation of Mr. Law, in Liberty County, Georgia, and sent to this city by James P. Heath, Esq. Both the size and weight must have been considerably diminished by evaporation.—*Amer. Farmer.*

Sunflower Oil.—We recur to this subject again for the purpose of answering the numerous inquiries of our correspondents relative to the culture of the sunflower, the quantity and quality of the oil expressed, its uses and value. The cultivation of the sunflower differs in no respect from that of corn, and the soil adapted to the latter is proper for the former. The sunflower thrives in all our various climates. Under proper cultivation and with a medium soil, it yields from 60 to 70 bushels to the acre. The machinery for crushing and expressing, will cost about \$300. One bushel of the seed will yield three quarts of cold, and one of hot pressed oil.

The uses to which this oil is adapted are various. It is equal to olive oil for table use, and superior in many important respects to sperm for lamps, while for paints and machinery it is well adapted to supersede the oils now used in them. For burning in lamps, the sunflower oil possesses one advantage, which has been an object of deep solicitude ever since sperm oil came into use—it has no perceptible smell; hence sick persons and others, to whom the smell of sperm oil in lamps is so offensive, can use the sunflower oil with perfect freedom. Its advantages in this respect, have been fully tested in Philadelphia, where it is recommended by some eminent physicians, and in constant use by their patients. It has another important advantage over sperm oil—it affords about one-third more light, that is, sunflower will last one third longer than sperm, both while burning affording the same quantity of light. As to a market for the seed and the price, at present there is none of either. At present Mr. Barnitz, the intelligent inventor of the new process of crushing and expressing the seed, recommends the producer to crush the seed and express his own oil. There is no doubt but oil mills will soon be established, at which the seed may be sold, for this oil is too important an addition to our resources to be lost. Charles A. Barnitz, of York, Pennsylvania, will give any information that may be required.—*Ibid.*

Saline Manures.—Gardeners and all those who endeavour to obtain early legumes or fruits, may profit by the following experiment, which confirms an established fact, that plants in a soil prepared with common salt, rarely suffer from the cold and the sudden changes of the weather.

The half of a bed of early peas raised in a garden in Worcestershire was dressed with salt, and the other half with common manure; upon the part which had been prepared with salt and in the proportion of about twenty bushels to the acre, the peas were fit to pick three weeks before the others, and the vines yielded five or six times as many.—*N. E. Farmer.*

German method of procuring Flowers in Winter.—According to the "*Recueil Industrelle*," the following method of expediting vegetation at will is practised in Germany:—A branch, proportioned to the size of the object required, is sawn off the tree, the flowers of which are to be produced, and is plunged into a spring, if one can be found, where it is left for an hour or two, to give time for such ice as may adhere to the bark to melt, and to soften the buds: it is then carried into a chamber heated by a stove, and placed in a wooden vessel, containing water; quick-lime is to be added to the water, and left for twelve hours. The branch is then to be removed into another vessel, containing fresh water, with a small quantity of vitriol, to prevent its becoming putrid. In a few hours the flowers will begin to appear, and afterwards the leaves. If more quick-lime be used, the flowers will appear quicker; if on the contrary, none be used, the branch will vegetate more slowly, and the leaves will precede the flower.—*Arcana of Science.*

Horticultural Society.—On December the 18th, 1827, some specimens of apples were exhibited before the Horticultural Society, which, it was stated, had been altered in external appearance by the influence of other kinds, the blossoms of which hung near them. This is a fact, which, if true, is utterly inexplicable to the philosopher.—*Ibid.*